NORTH CAROLINA MEDICAL JOURNAL

OWNED AND PUBLISHED BY
THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

VOL. 2 MAY, 1941 NO. 5

THE MEDICAL CITIZEN OF 1941

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NEW YORK CITY

At Winston-Salem in North Carolina on the sixteenth of April, 1941, the corner stone of a new building dedicated to medical education will be well and truly laid.

This corner stone is just another member of a foundation which it is hoped will be strong enough to support its share of the weight of a civilized American structure.

This new building with all of its modern ideas designed to facilitate the instruction of students of medicine will be valuable in proportion to the ability and devotion of its faculty to develop physicians who will possess not only adequate knowledge, but a spirit of service as medical citizens.

Institutions of learning are valuable to our American society in proportion to the strength of their effort to build up intelligent loyalties to American ideals.

Too many physicians are, in a sense, cloistered within their own professional lives. Too few are active participants in civic life.

America has greater need for medical citizens today than at any time in our history. She needs people who are educated in the techniques of the sciences of biology, of medicine, and of sociology. She needs citizens who will look to the future while standing upon the solid fundamentals which are the underlying strength of our civilization.

She needs citizens who will be strong enough to combat ideologists who are aiming at her destruction by revolution.

In April, 1941, we are at the beginning of a great struggle abroad with organized autocracies, and at home with organized revolutionists, a few of whom, I regret to say, are within the ranks of the medical profession.

Some of these physicians have openly expressed the thought that our social structure must be completely leveled and completely rebuilt after the Russian pattern, before we can hope for liberty and justice and world wide peace.

Apparently no one can find a place where there is less freedom, less justice, and less prospect of peace than in Soviet Russia.

Much of the unrest may be due to the fact that the issues are obscured, while our government waits for the force of public opinion to push it into the path it would like to follow or already means to follow.

Medical citizens have expressed the wish to serve the country if and when they are needed, but are becoming impatient of uncertainty.

Is America in war? Or is America merely building material for sale or exchange? Is the mobilization of a million men just for exercise or has it a definite objective abroad or at home?

Thousands of medical citizens who are lukewarm about going to training camps would be eager to play their parts in a real national emergency. They want to know what mobilization of men and material really means.

The medical citizen of 1941 faces a difficult future. If the country goes to war, more than forty thousand physicians will be needed in our armed forces. This will seriously affect the public services they now carry on.

Address read at the laying of the corner stone of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, April 16, 1941.

They are not like ordinary trainees, because most of them are in active work; they may lose their places in their medical progress, and at the end of a war return to vanished opportunities. Whatever happens a great mobilization is in progress. Armies at home or armies abroad must have medical care, and many worthwhile careers will be dislocated.

The education of the successors of these physicians of 1941 must be given serious consideration.

What shall be the content of their education to fit them for the best service to the nation?

What will your school do about it? The civilian population will need good physicians. Will you think of the small towns as well as the big towns? Will you train soldiers or civilians or both? Will you try to teach loyalty to America's future or will you be indifferent to moral quality? Will you try to send into the new America the good citizens she needs, or will you think that you have discharged your duty if you confine your teaching to professional techniques? Will you lend the weight of your influence to mobilizing public opinion and to bringing order out of confusion?

Common ground must be found where isolationists, pacifists, nationalists and internationalists and all other patriots may exercise their loyalties in support of the best interests of our country. The functions of the medical citizen need to be carefully integrated with all efforts to preserve and to restore the morale as well as the physical health of all our people.

The American Medical Association has played the leading role in nearly a century of medical progress. Its history records year by year the constant modernizing of scientific thought in America.

The moderns of 1841 were just as up-to-date as you are in 1941. They immersed themselves in new problems and emerged advocates of new science, even as you are today studying with amazement the evolution of a new chemotherapy.

Our modern schools are engaged upon an educational experiment which will never be finished. None of us can practice the kind of medicine we were taught twenty, thirty, forty or fifty years ago. In our undergraduate days we were compelled to absorb more required education than was given to any other profession, and yet, most of the good medicine of fifty years ago now has merely an historical interest.

No one questions the sincerity of the schools in their effort to prepare the student to practice his profession, but one may believe that the schools attempt to crowd so much into the undergraduate that only the exceptional student can digest his over feeding.

Four years is not long enough to teach all of medicine, nor is a lifetime.

The doctor of medicine must study as long as he lives. When the student comes to his internship he quickly realizes that applying his knowledge to the patient problem is a plunge into deep water.

I am inclined to believe that one of our country's greatest needs is good average practitioners of clinical medicine to take care of average patients.

Most of the teachers in the schools are themselves specialists, and if they are sufficiently luminous, they inspire their students to follow their example. Consequently many of our young interns have already hitched their wagons to stars before they come to the hospital and seem uninterested in the general clinical procession found in rotating services. Some of them try to cut short their hospital stay in order to go into special fields.

I would like to see educators work out the problem so that medical study should begin at least two years earlier than it does now, and so that it should furnish four years of clinical work, as a good education in internal medicine, obstetrics, traumatics, minor surgery, physical therapy and some basic instruction in the application of preventive medicine to the needs of the public health.

I would like to see all specialty teaching postponed until it is demanded by the graduate student. This, of course, would involve the creation of graduate medical schools in our universities.

In the interest of continuing and refreshing education for all practicing physicians, I would like to see our medical schools carry on extension courses in cooperation with organized medicine.

Reading papers on scientific subjects before medical societies is not enough. A few physicians may be able to return to their schools for graduate work, but most of them are unable to do this, and much needed education must be carried to them.

Individuals from medical faculties do go to other towns now, but I believe that much would be gained by cooperative planning by the schools and the medical societies.

Every practitioner in the land should be interested in post graduate work. In the state of New York forty courses a year are now being given by county medical societies.

In some places "teaching days" are promoted which are often attended by more than a hundred physicians. An expert is invited to meet a group in the afternoon when illustrative patients are assembled. A clinic is held, and then the group goes to dinner, where the discussion is continued on a question and answer plan.

Some of the universities are taking this idea very seriously.

A Regional Maternal Welfare Teaching Day was held at Syracuse on April 3 under the auspices of Syracuse University, the Obstetric Society of Syracuse Hospital, The Division of Maternity, Infancy and Child Hygiene of the New York State Health Department, and the Medical Society of the State of New York. Another Maternal Welfare Teaching Day was held at Rochester on April 9 at the University of Rochester Medical School and the Rochester Academy of Medicine.

These programs were arranged by the Committee on Graduate Education of the State Medical Society and were well attended.

Teaching through scientific exhibits is increasingly popular. The exhibit of scientific material at the annual meetings of the American Medical Association is so remarkably stimulating that the old system of formal papers seems doomed to disappear.

I believe that the development of these forms of graduate education points the way to desirable changes in our entire educational system—when practical clinical work shall prepare young and old for the realities of their professional and civil lives.

I presume that a few of you are dreaming of the future of medicine, but most of you are concentrating upon the best solution of your immediate clinical problems.

Unfortunately you must be acutely conscious now that you must do a good deal of altruistic thinking, that you must look out of the windows of your laboratories and your consulting rooms into the fields beyond if the world is not only to be made a better place to live in, but to be rescued from real perils which threaten to destroy our happy civil privileges of thought and speech and action.

Hard labor, hard study and sometimes inspired leadership have carried American Medicine to the supreme place among the health services of the world.

Retrospectively, the story of American Medicine is full of successive triumphs over stumbling ignorance as our pioneers searched for new frontiers of science.

The romance of the doctor as he progressed from empiricism to scientific controls and from the saddlebag to the automobile is a thrilling story of devotion to idealism.

The last fifty years is the inclusive period of so called modern medicine. Modern medicine is the end result of the evolution of individual efforts to cure the sick, to restore them to functional usefulness, and to enlist community support in the prevention of disease.

Forty years ago improving statistics and faith in modern methods inspired Herman Biggs to say that "Public Health is purchasable. A community can, within certain limits, determine its own death rate."

You all know how amply the Biggs dictum is justified today.

On March 5 in New York City the Seventy-fifth Anniversary of the founding of the City Health Department was celebrated.

Infant mortality was 250 per 1000 live births in 1866 and was 34 in 1940. Diphtheria claimed 3000 New York City victims annually in 1866, but last year only 10 children died from this disease.

The death rate from tuberculosis in upstate New York has been cut in half since 1920, when it was 74.6 per 100,000 of population. It was 36.3 in 1940.

Similar statistics are reported from many sections of the United States, and especially from places where there is intelligent concert of action between practicing physicians and local health officials.

Organized medicine has made marvelous contributions, in coordinating the efforts of individuals, in encouraging them by helpful recognition, and in supporting high standards of ethical practice which have been of the greatest importance to the general public in protecting them from swindling quacks and stupid incompetents.

Exemplary individuals have always in-

spired imitation. Outstanding genius has always had its followers, but organization has always been necessary to direct the freedom of fraternity along the roads which lead toward the greatest good to the greatest number.

Individual physicians accepted regulation, by accepting the rulings of the county medical societies. The county societies merged their idealism with that of the state medical societies, which in turn formed the great federacy which is the American Medical Association, with a membership of 118,000 physicians.

It was a natural desire of these members that every function should work as efficiently as possible, and that its motivation should be inspired by the highest ideals and implemented by the best educational equipment; medical schools therefore, were encouraged to step up their curricula to the best of the world's standards.

This has been done, and today medical education in America has no superiors.

It was a natural and necessary desire that the working tools and the work shops of the doctor should be developed into and maintained as effective instruments of public service, and so the hospitals were modernized and encouraged and humanized and charged with definite responsibility.

It was a natural desire of every physician to enjoy hospital privileges, but the necessity of giving only the best possible service to the community imposed limitations and developed graded and classified services, so that the patient could be guaranteed competent care.

The medical student is, therefore, trained to become an effective servant of the hospitalized sick—he lives for a year or more in a hospital as a cog in a public service machine—as well as a licensed practitioner with all the rights that he may be competent to use in the community.

The tempo of life during the last hundred years has not only changed our ideas of normal living, but has changed our vital statistics.

Life expectancy has changed from 21 years in 1835 to 62 years in 1940. I read that "Heart disease caused twice as many deaths in 1939 as any other disease." "Of the 1,387,897 deaths reported in 1939, 360,634 were caused by heart disease; 114,967 by cerebral hemorrhage; and accidental deaths totaled 92,623, of which 32,386 were credited to the automobile."

During the last fifty years America became motorized and developed such exhausting speed that many failed in the struggle to keep up with a procession that endlessly tried to find new frontiers.

Life became so externalized by one scientific revelation after another that domestic and religious loyalties were often forgotten in the mad pursuit of new objectives that were undreamed fifty years ago.

Elusive ideals carried us through two wars without satisfaction, and now we have come to a time when all that we have cherished must be defended against destruction by disintegration or external attack.

It is obvious that a European civilization is falling to pieces and that a new social mosaic must appear. Whatever our sympathies we must prepare ourselves to play an important part in a new world order.

No one can accurately plot the future, but all Americans will be deeply concerned in the common cause of defending the nation and in promoting the security of the last and only surviving peaceful democracy.

We have seen that reversions from democracy to autocracy in Europe seem to have been caused by long disintegration of character, by subsidizing the discontented to gain their support of governmental control under the aegis of paternalism.

If we are wise we will apply these lessons to our own evolution, not only to the peculiar problems concerned with our cosmopolitan society, but to the development of the special fundamental social problems concerned with the protection of the physical, mental and moral health of our people.

We have come to a time when every health agency must be mobilized for national defense. In a time of national emergency we must watch our steps, lest we be lured into by-paths that may lead to a surrender of the practice of medicine to governmental control.

We must conserve everything that is good and at the same time push forward with objective planning.

Some of our clothes are out-moded. Thomas Jefferson said you cannot expect a grown man to wear the coat cut for him when a boy.

We must be careful not to let down our standards of medical education. The American people must be assured the best care we

can give them. The Committee on Medical Preparedness of the American Medical Association has been working for ten months to mobilize the medical profession for field and home service. It is unanimously of the opinion that no medical student should be inducted into service, that good pre-medical students should not be diverted from their ambitions, and that the flow of educated physicians should be maintained at the present rate.

Whether we shall continue to enjoy a modified peace, or shall become involved in active warfare, the program is planned for at least five years.

Unless medical teaching shall be continued, our medical service, both private and institutional, will soon be inadequate.

Hospitals are already losing interns faster than they can be replaced.

Let physicians take the leadership for which they are qualified; let them emerge from their conservative shells and demand sane and progressive programs which will assure a continued good medical service, and let them educate all the people in their own communities and ask their cooperation in developing sound programs for American Health.

In the spirit of such an ambition let us face the dark hour of the world crisis. However horrible the European fratricide which stirs our emotions so deeply, let us keep our eyes open and our ears alert to our own opportunities for patriotic service. Let us not bury our heads in the sand. Let no one lull us to sleep with stories of security. Let us rise to our common responsibility with renewed energy.

Away back in the era of Babylonian culture practitioners of healing arts were compelled to organize themselves for the protection of the people against the deceptions of charlatans and quacks. That was four thousand years ago. The need for rededication is upon us now.

The autocratic quackery of Hitler, Stalin and Mussolini must be resisted with all our strength.

Crystallizing American opinion into a determination to stop a Frankenstein would prevail because of the strength behind it.

Wishful thinking is feeble resistance. A Scotch minister prayed: "Oh, Lord, we pray thee to convert Hitler to the ways of civilized peace. If that cannot be, oh Lord, we pray thee to take him to thyself."

Two thousand years ago medical thought was crystallized into adherence to the Hippocratic Oath. Its cohesive altruism has survived the rise and fall of many civilizations, until today the ideal of devotion to the service of all mankind is stronger than ever. Although I believe that this is peculiarly true of the American medical profession, which is always giving freely of its scientific effort to salvage the sick, I fear that we must have somehow failed in our acceptance of our responsibility as citizens.

In the year 90 A.D. the Roman Empire extended from the English Channel to the Red Sea. A little man named Paul, 5 feet, 3 inches tall was a prisoner in Rome. He was a giant ferment which stimulated the growth of religious devotion into one of the potent forces which stopped the march of paganism. We need a Saint Paul today.

A new generation of people has grown up in Germany which has been so saturated with paganistic ideologies that they have thrown aside the inhibitions of all religions except the irreligious nihilism of force which they worship and deify as "Welt Macht". Ruthlessly they are now marching over the democracies of the world, destroying all who do not conform to the brutal demands of their insane leader.

Germany is no longer the mecca for advanced education; the masters were driven out by the lash of paganism, and medical education has lapsed below mediocrity. The medical course was cut to two years in 1939, and quacks and nature healers were legalized.

German scientists paralyzed by fear or starving in concentration camps, German youth hardened into determined machines concentrating upon a single objective, world domination—these present a picture all the patterns of which are painted a lurid red.

Norway, Holland, Belgium, France—all were betrayed by privileged visitors, masquerading as friendly workers. How many such inspired criminals do you think may be now undermining the British Empire?

The United States of America has already been invaded. Advance columns have exerted subversive influences in every part of our country, have sabotaged the mind of youth, and even boldly drilled in uniforms.

Many of you remember that these organized movements have been actively going on in this country for the last twenty-five years.

Some of you have personal knowledge of the effects of this quarter of a century of foreign propaganda.

It was reflected in the full approval of Hitler by an important retired American officer, and within a few weeks by the expression of a distinguished business man that he waits with impatience for an American dictator.

The ideals of popular government which were promoted by Washington, Jefferson and Lincoln are remembered only in political oratory. Petty dictators are already here. Our intelligentsia are lazily surrendering the domination of our great cities to organized gangsters. Shall we awake before it is too late?

It is very late to withdraw our hospitality from those foreign visitors who now enjoy the safety of asylum, but every effort should be made to convert them to an appreciation of the benefit of living in an advanced democracy. If these efforts fail, they should be returned to the sources from which they came.

The seismograph is recording the workings of agitators in the fields of labor and of education at every social level. Widening cracks are appearing in the surface of our economic, religious and social systems which may engulf our democracy.

Every potential leader of public opinion in the United States must be mobilized to defend our country against ideas which are destroying the values of our civilization.

All professionals—every physician, every dentist, every pharmacist, every lawyer, every clergyman, every teacher, every trained nurse, every trained thinker—must be enlisted in a continuous campaign of defense.

Defense against those forces which destroy our religions, our faith in God and in our fellowman, is vital to the preservation of the integrity of our national life.

A jury has returned a verdict of guilty against the American Medical Association for alleged violations of an Act to prevent restraints of trade.

The American Medical Association is an educational institution. It has never been in business and never in trade. Its aims are the promotion of medical education and the protection of the American people from the deception of incompetents and quacks.

The American Medical Association will continue to try its case before the court of public opinion, and it will continue to try to serve the American people to the best of its ability long after the persecutors have passed from the scene.

The excellent health of the American people is largely the result of the efforts of the organized profession of medicine.

The physicians of America are fundamentally and earnestly patriotic, and I am confident that they will carry on the best of their traditions in their continued battle for the American way of life and the spirit of a free democracy.

I believe that the American Physician of 1941 is the best physician in the world. I hope that he will prove himself to be an effective citizen.

THE PERSONAL ELEMENT IN MEDICINE

THURMAN D. KITCHIN, M. D.

It has been said that "there are two enduring human needs, education and the relief of suffering."

We have just witnessed the symbolic cementing of the resources for meeting these needs under one roof. Philanthropy and science will furnish the dynamics to enable this institution to pulsate with the health-giving properties of modern medicine and to throb with the life blood of learning.

But there is a tripod supporting man's welfare. These two—relieving suffering and training the mind—are incomplete. There is a third essential—the great values of the unseen and unheard truths of the spiritual world.

Three sinister evils impede man's upward progress and compromise his well being—sin in the soul, ignorance in the mind, and disease in the body. The full Gospel of Christ means to save both soul and body of man. It is our desire that here may be used the Church, the School, and the Hospital as mediums through which we attempt to follow the example of our Lord in preaching, teaching, and healing.

I have profound reverence for scientific knowledge and am sure that this side of our institutional life will be adequately de-

Talk made at the laying of the corner stone of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, April 16, 1941.

veloped and advanced through careful research.

I want now to place emphasis on the personal element in this institution's contribution to human welfare.

Is it too much to hope that in this institution, made possible through the generosity of friends and conducted under the auspices of a Christian school, the ice-cold rigidity of the science of medicine may thaw a little so that the patient himself, who is afflicted, may be considered as well as the disease? In other words, that the patients admitted to this hospital will be regarded as personalities and not merely as cases? In this way, the austerity of science will be blended with the sympathetic art of medicine, with no compromise of either.

I have sometimes thought that doctors have been so busy diagnosing and treating and preventing disease that the individual harboring the disease has almost been forgotten. Of course, it is presupposed that doctors should know all that is known about the scientific side of medicine, the latest in diagnosis and in treatment; but even this is not enough, since the reason for any of it to be done at all was, is, and always will be the patient. Undoubtedly we have in our scientific studies strengthened the tangible things in diagnosis and treatment. We must guard against the danger that the intangible —that is, the human element—may be lost. With the test tube in one hand and the microscope in the other, we have no hand left for the patient. We must develop an imaginary third hand. Without weakening either the test tube or the microscope hand, this emanation from the heart, from the spirit, may help the patient to keep up his courage and fight his way on. In our praiseworthy passion for research and for the application of new discoveries in medicine, let us never lose sight of the *personality* of the patient, the spark animating the clay.

Today much of the intelligence of the world and the inventive genius of man is dedicated to death and destruction. It is heartening to see rise here an institution that is dedicated to the healing of humanity's hurt. Here the art of administering to the sick, and the research into the hidden mysteries of disease will go hand in hand.

Let us cry "All good things
Are ours, nor soul helps flesh more, now,
than flesh helps soul!"

—*Browning.*

MODERN TREATMENT OF PNEUMONIA

HARRISON F. FLIPPIN, M. D.

PHILADELPHIA, PA.

The term pneumonia has been used for many years to designate an acute inflammatory process involving the parenchyma of the lung. In most instances the disease is caused by specific infectious agents, although it may result from non-infectious causes. In the past, clinicians and pathologists classified pneumonia according to its anatomical forms, but for purposes of specific treatment and prognosis, we now employ a bacteriological classification. Since the great majority (92 per cent) of pneumonias are caused by the pneumococcus, we will limit this discussion to pneumococcic pneumonia.

The discovery of the effectiveness of sulfapyridine in pneumococcic infections reopened the entire field of chemotherapy in pneumonia. Since its introduction four years ago, numerous clinical reports[1, 2, 3] have unquestionably established its therapeutic effectiveness, and there can be no doubt now that its use in pneumonia constitutes the greatest advance in the control of this disease. We have recently compiled from the literature over 2500 cases of typed pneumonia treated with sulfapyridine without serum. The mortality rate for this entire series was only 7.3 per cent. This figure is indeed impressive when we recall the former mortality rate of 25 to 30 per cent.

In addition to its proven therapeutic value, sulfapyridine therapy in pneumonia has certain other advantages: (1) It is readily accessible. (2) It is easily administered. (3) It can be had for a relatively low cost to the patient. (4) It possesses uniform potency. (5) It is useful in all types of pneumococcal pneumonia. (6) It markedly reduces the incidence of complications from the disease. It is generally recognized, however, that sulfapyridine is not an ideal drug because

Presented before the University of North Carolina Post-Graduate Course in Medicine, Raleigh, March 14, 1941.
From the Committee for the Study of Pneumonia, Philadelphia General Hospital. Aided by a grant from the American Philosophical Society.

1. Evans, G. M., and Gaisford, W. F.: Treatment of Pneumonia with 2-(p-aminobenzenesulfonamido) pyridine, Lancet, 2:14, 1938.
2. Flippin, H. F., Lockwood, J. S., Pepper, D. S., and Schwartz, L.: Treatment of Pneumococcic Pneumonia with Sulfapyridine, J. A. M. A. 112:529, 1939.
3. Graham, D., Warner, W. P., Dauphinae, J. A., and Dickson, R. C.: Treatment of Pneumococcic Pneumonia with Dagenan, Canad. M. A. J. 40:325, 1939.

of certain toxic reactions associated with its use.

In the fall of 1939 there became available another sulfonamide derivative, sulfathiazole, which has proved to be as effective in the treatment of pneumonia as is sulfapyridine, and at the same time to be less toxic. Our own clinical experience with sulfathiazole[4], combined with the reports of others, leads us to believe that it is rapidly replacing sulfapyridine as the principal therapeutic reliance in pneumonia. The purpose of this paper is twofold: to discuss the use of sulfathiazole in pneumonia, and to present briefly our observations on a new sulfonamide compound, sulfadiazine.

Sulfathiazole

In a comparative study of the therapeutic effectiveness of sulfapyridine and sulfathiazole in pneumonia[5], it was found that the effects of the two drugs on final mortality were approximately equal. Sulfathiazole did not bring about a critical fall in temperature within twenty-four hours as frequently as did sulfapyridine, but the number of drug-induced crises within forty-eight hours was similar for the two drugs. Likewise, a return to a normal temperature did not occur as rapidly with sulfathiazole as with sulfapyridine, but the average number of hospital days for the two therapeutic agents was the same—namely 13.4 days. Secondary rises in temperature with sulfathiazole appeared to occur less frequently than with sulfapyridine. The incidence of complications of pneumonia has been markedly reduced with the use of sulfapyridine, and comparable results have been obtained with sulfathiazole. This is most convincingly demonstrated by the low incidence (1.2 per cent) of empyema in patients receiving either drug.

Toxic Reactions: In general, the toxic effects of sulfathiazole are similar to those caused by sulfapyridine, but occur less frequently and with less severity. The most frequent toxic reactions from sulfathiazole are nausea and vomiting. As a rule they appear during the first twenty-four hours of therapy. However, the vomiting associated with sulfathiazole is usually mild and occurs in only 20 per cent of patients, as compared to the more severe vomiting which accompanies sulfapyridine therapy in about 60 per cent of cases. Rarely does the vomiting in sulfathiazole treated patients become so severe as to necessitate stopping the drug. This advantage is of decided importance in the management of patients suffering from pneumonia. When vomiting is persistent it is advisable to replace water and chlorides by intravenous administration of saline solutions, in order to prevent hypochloremia and dehydration.

Toxic effects involving the urinary tract have constituted one of the most important complications of therapy with either sulfathiazole or sulfapyridine. Microscopic hematuria occurs in approximately 10 per cent of pneumonia patients receiving either drug. Gross hematuria, which is observed in 1 per cent of sulfapyridine treated cases, has been observed in only one of 500 cases treated by us with sulfathiazole. The associated microscopic hematuria is probably explained in part by the presence of urinary crystals composed of the acetylated fraction of either drug. Unless a considerable number of red blood cells are detected, or evidence of ureteral blockage is present, cautious treatment may be continued. Crystals of acetylsulfathiazole were frequently seen in the voided urine and were found at autopsy in the renal pelves and tubules of one of our patients who died with endocarditis. Anuria, caused by sulfathiazole, has not been encountered by us, but we note rather frequently a transient reduction in urinary output during therapy. We feel that the possibility of serious renal damage from sulfathiazole must be borne in mind. If the urinary output tends to decrease markedly the patient should be given additional fluids, and if immediate return of renal function does not occur, the drug should be stopped.

Dermatitis occurs in about 3 per cent of pneumonia patients treated with sulfathiazole. These skin eruptions may be maculopapular, urticarial, or may simulate the clinical appearance of erythema nodosum and be associated with pain and tenderness of the joints. It is usual for fever to occur in conjunction with these drug rashes. Conjunctivitis, apparently caused by sulfathiazole therapy, is occasionally seen. The development of dermatitis or conjunctivitis necessitates the withdrawal of the drug.

The diagnosis of drug fever in pneumonia patients is a difficult one to make unless a

4. Flippin, H. F., and Lockwood, J. S.: Sulfathiazole and Sulfapyridine in the Treatment of Pneumococcal Pneumonia and Meningitis, M. Clin. North Carolina, 1789, November, 1940.

5. Flippin, H. F., Reinhold, J. G., and Schwartz, L.: Sulfapyridine and Sulfathiazole Therapy in Pneumococcic Pneumonia, J. A. M. A., 116;683, 1941.

skin rash accompanies the fever. We have encountered what we believe to be drug fever in about 3 per cent of patients. In the absence of other complications associated with pneumonia it is best to discontinue the drug for at least twenty-four hours, as the fever will usually subside within this time if it is due to the medication. Toxic psychosis caused by the drug is also a difficult diagnosis to make. About 4 per cent of our patients developed varying degrees of mental confusion which we attributed to the use of sulfathiazole. Since most of these patients were seriously ill we did not discontinue therapy until the infection was under control.

In the majority of patients the white blood cell count tends to drop during the first forty-eight hours of sulfathiazole treatment. White cell counts below 5000 are observed in about 3 per cent of patients, with the granulocytes falling below 50 per cent in only 0.5 per cent of cases. So far, in our experience, agranulocytosis has not been encountered. A progressive neutropenia demands daily blood studies, and if the patient's condition warrants it, the drug should be withdrawn. So far, this has not been necessary. The red cell count and hemoglobin likewise fall in a number of cases, but in view of the fact that pneumonia patients are frequently given extra fluids after admission in order to correct dehydration, it is difficult to evaluate this apparent secondary anemia. If the hemoglobin is below 60 per cent, blood transfusion may be given without stopping chemotherapy. Acute hemolytic anemia has not as yet been seen in patients treated with sulfathiazole, but should this complication occur the drug must be stopped and blood transfusion instituted immediately.

Hepatitis due to sulfathiazole medication has not yet been observed, although a number of pneumonia patients have clinical or subclinical jaundice on admission. The development of toxic hepatitis secondary to sulfonamide therapy demands immediate cessation of drug administration.

A review of these toxic manifestations indicates that the more severe toxic reactions, such as serious renal involvement, blood dyscrasias and dermatitis are infrequent with sulfathiazole therapy. However, the danger of severe toxic reactions increases with the prolonged use of the drug and is greater in patients with chronic organic disease accompanying the acute infectious process. In the treatment of pneumonia we may expect a low incidence of severe toxic effects, as most patients require no more than 25 to 35 Gm. of the drug, extending over a period of approximately five days. However, when using sulfathiazole in diseases requiring treatment over a longer period of time, one may expect a greater incidence of serious toxic reactions.

Contraindications: In our experience the only possible contraindication to sulfathiazole treatment is a history of a previous sensitivity to sulfanilamide and its derivatives as manifested by drug fever, gross hematuria, dermatitis, hemolytic anemia, neutropenia, or jaundice. Even in spite of such a known sensitivity, it might be advisable, if the pneumonia is severe, to administer the drug and watch for toxic effects. The presence of jaundice, anemia, or leukopenia before treatment is started does not contraindicate drug therapy. We know of no medication which cannot be given to patients receiving sulfathiazole.

Mode of Action: At this time there are several theoretical conceptions as to the mode of action of sulfathiazole, but no one theory has been evolved which adequately explains its action. However, certain principles of treatment may be followed as a result of clinical observation with its use in several types of infection. It appears that sulfathiazole exerts its greatest effectiveness in diffuse lesions characterized by maximal tissue invasion and minimal tissue destruction. The presence of necrotic tissue or pus in a lesion prevents sulfathiazole from acting upon the organism with the same maximum effect which characterizes its action on diffuse, non-suppurative infections. Furthermore, if an infection is treated after two or three days of progression, and some degree of localization or pus formation has occurred, sulfathiazole seems clinically to accomplish little more than to protect uninvolved tissue. Although the fundamental aspects of the mode of action are still uncertain, we may apply the above considerations in the treatment of pneumonia. Therefore, it is important to start sulfathiazole medication early in the disease process before pus formation takes place. Once empyema has developed the drug is relatively ineffective and surgical intervention is indicated.

Routine Management: In the treatment of patients with pneumonia it is impossible to make hard and fast rules, for each patient must be handled as an individual case. However, we endeavor to follow a certain routine in the management of patients on our pneumonia wards. As soon as the diagnosis of pneumonia has been established, specimens for routine laboratory studies (complete blood count, urine, sputum, and blood culture) have been collected, and a negative history of sensitivity to sulfonamides has been elicited, treatment is instituted at once.

Dosage and Administration: Sulfathiazole is relatively insoluble; in an aqueous solution at 28 C. it is only .09 per cent soluble. However, in body fluids it attains a greater degree of solubility. For practical purposes we may assume that sulfathiazole is almost completely absorbed from the intestines in two or three hours after oral ingestion of moderate doses. In general, a blood concentration of approximately 4 mg. per 100 cc. of free sulfathiazole can be obtained within this time, following a 3 Gm. dose by mouth[6]. After the fourth hour the amount of free drug in the blood diminishes rapidly. Therefore, in order to attain and maintain an adequate blood level it is important to administer large initial doses of the drug and to continue it in smaller doses at four hour intervals, day and night. This schedule of dosage is imperative, since it is the only way that an even concentration of the drug can be maintained in the blood. Irregular or varying blood levels result in diminished therapeutic effectiveness.

An initial 3 Gm. dose by mouth is repeated in four hours and then followed by 1 Gm. every four hours thereafter (unless signs of a severe toxic reaction develop) until the required dosage has been administered. Treatment on this dose schedule, which usually maintains a satisfactory level of free drug in the blood, is continued until the temperature remains normal for forty-eight hours and the patient shows evidence of clinical improvement. It is important to bear in mind that a recurrence of spread in the infection may occur if treatment is discontinued too early. Not infrequently the initial clinical improvement, as judged by a fall in temperature, proves to be deceptive, so that carefully performed physical examinations are important to detect possible extension of the infectious process. In general, the total dosage is about 35 Gm. If patients are unable to cooperate to the extent of taking oral medication, the drug may be given through a tube introduced by way of the nose into the stomach. In certain instances, when a rapid elevation of the blood level of the drug is desired, or oral medication is impractical, a 5 per cent solution of sulfathiazole sodium (0.06 Gm. per kilogram of body weight) in sterile water can be given intravenously. This dosage should be repeated within six hours, although in our experience it is rarely necessary to give more than two intravenous injections.

Serum: The advisability of administering type-specific serum in addition to sulfathiazole is still a controversial subject. However, we believe that cases in which drug treatment has failed to bring about the expected clinical response within thirty-six to forty-eight hours should be given the benefit of combined therapy. Here again, the physician must treat each patient as an individual, and should give serum earlier when confronted with an overwhelming infection or bacteriemia. When serum is to be administered, the usual preliminary sensitivity tests, conjunctival and intradermal, should always be performed. If these prove negative, after twenty minutes, further intravenous testing with undiluted serum (1 cc.) is carried out. If, after seventy minutes, no untoward reaction has occurred, the patient is given an initial dose of 100,000 units of undiluted type-specific serum intravenously, followed by further injections of serum when necessary.

Fluid Balance: After sulfathiazole is absorbed into the blood stream, a portion of the drug is conjugated by the liver into the acetyl fraction, which is practically inactive and probably represents the more toxic fraction of the drug. In general, it can be assumed that approximately 30 per cent of the drug appears in the blood as acetylsulfathiazole and 70 per cent is available as free sulfathiazole. The drug is excreted both as free and acetylated sulfathiazole mostly in the urine and usually within twenty-four hours. The excretion is similar to that of urea, but reabsorption by the tubules occurs to a greater extent, and elimination of the drug is reduced in the presence of diminished nitrogen excretion. However, the clearance is definitely increased by an increased rate

6. Reinhold, J. G., Flippin, H. F., and Schwartz, L.: Observations on the Pharmocology and Toxicology of Sulfathiazole in Man, Am. J. M. Sc. 199:393, 1940.

of flow of urine, and this is best obtained by forcing fluids. With a decrease in kidney function we find an increase in concentration of the drug in the blood, particularly the acetyl fraction. Therefore, should the volume of urine become too small the possibility of stone formation in the urinary tract by acetylsulfathiazole crystals is greatly increased. Hence it is extremely important, in order to facilitate the excretion of acetylsulfathiazole by the kidney, to maintain a urinary output of at least 1200 cc. daily. If necessary, fluids should be given parenterally in order to insure this output.

Alkalis: The administration of alkalis with sulfathiazole in the treatment of pneumonia seems advisable. Their use tends to decrease the incidence of sulfathiazole crystals in the urine. Equal amounts of soda bicarbonate or sodium citrate should be given with the drug.

Oxygen: The rational method of treating cyanosis and dyspnea in pneumonia is by the efficient administration of oxygen. It is of definite value in affording symptomatic relief, and is probably at times a life-saving measure. However, we feel that its use in many cases is not indicated, and in some it proves to be harmful. At the present time we resort to the use of the portable oxygen tent or the B.L.B. oxygen mask.

Adjuvants: The use of opiates for controlling pain, restlessness, cough, and insomnia is important in the treatment of pneumonia. Digitalis is administered in proper amounts when indicated, but is not used as a tonic. With chemotherapy the abdominal distention occurs less frequently and is less severe, but when it occurs it demands prompt attention. Enemas are preferable to cathartics, and, if necessary, should be supplemented by turpentine stupes or flaxseed poultices. When distention is marked, hypodermic injections of prostigmin or pitressin are often beneficial. However, it is advisable beforehand to insert a rectal tube to facilitate the passage of gas. In selected cases of distention, we have found the use of the Wangensteen apparatus effective when other methods have failed. Whiskey and brandy are helpful remedies, especially in the aged and in chronic alcoholics. Finally, the most important aid in the successful treatment of a patient with pneumonia is good nursing. There is probably no disease in which the services of well-trained nurses are more valuable.

Sulfathiazole blood levels: Several factors, such as kidney function, drug absorption, and the state of dehydration are responsible for the individual variation in the concentration of sulfathiazole in the blood. Our data fail to show any correlation between therapeutic effectiveness and the blood level of free drug in the range of 2 to 15 mg. per 100 cc. It appears that therapeutic action is not enhanced by establishing concentrations of the free form above 5 mg. per 100 cc. It is reasonable to believe that if a free level of 5 mg. is maintained, satisfactory results should be expected. Levels exceeding this limit have been shown to be associated with a greater frequency of vomiting. Also, there exists a relationship between high concentrations of acetylsulfathiazole and hematuria.

Drug failures: Sulfathiazole, like other members of the sulfonamide group, exerts maximum effectiveness in a relatively short period of time. The failure of a patient suffering with pneumonia to respond to sulfathiazole therapy within forty-eight hours usually suggests several possibilities. First, there may be an overwhelming infection with spread probably accompanied by bacteriemia. Such cases should be given the benefit of type-specific serum in addition to the drug. Second, a localized suppurative process, such as empyema, may be present, in which case surgical intervention is necessary. Third, the possibility of drug fastness must be borne in mind, although this condition is very rare. Serum is indicated in these cases. Finally, the causative agent of the infection may be an organism not affected by the drug, such as a virus. It is best to stop chemotherapy in this type of infection.

If the basic considerations just presented are consistently recognized in the management and care of pneumonia, we believe that constantly improving results will be obtained.

Sulfadiazine

Within the past few months there has become available for the treatment of pneumonia a new sulfonamide derivative, sulfadiazine. Observations[7] on the absorption, distribution, and excretion of this compound indicate that it is readily absorbed from the gastro-intestinal tract, but is excreted at a

7. Reinhold, J. G., Flippin, H. F., Schwartz, L., and Domm, A. H.: The Absorption, Distribution, and Excretion of 2-sulfanilamido pyrimidine (sulfapyrimidine, sulfadiazine) in Man. Am. J. M. Sc. 106:201, 1941.

somewhat slower rate than is sulfathiazole. A study on the comparative effectiveness and toxicity of sulfathiazole and sulfadiazine in pneumonia has just been completed by us[8]. According to the mortality rates, sulfadiazine is equally as effective as sulfathiazole. Also, sulfadiazine seemed to lower the temperature somewhat more rapidly than did sulfathiazole. The toxic manifestations were approximately the same for the two drugs, although the incidence of vomiting was lower with sulfadiazine. Microscopic hematuria was encountered more often in patients receiving sulfathiazole. This latter difference in toxicity is probably a result of the lower degree of acetylation of sulfadiazine, plus the fact that acetylsulfadiazine is more soluble in urine than is acetylsulfathiazole.

Although our experience with sulfadiazine is quite limited, it is our impression that this new sulfonamide will have a place in the treatment of pneumonia and may prove to be the drug of choice.

8. Flippin, H. F., Rose, S. B., Schwartz, L., and Domm, A. H.: Sulfadiazine and Sulfathiazole in the Treatment of Pneumococcic Pneumonia, Am. J. M. Sc. 201:585, 1941.

SERIAL PYELOGRAMS IN NEPHROPTOSIS

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CHARLOTTE

The purpose of this paper is to review briefly the relevant literature and to present a study of 47 cases of nephroptosis seen in the Brady Urological Foundation during the two years 1937 and 1938[1]. In studying cases of ptotic kidneys there are two important factors to be considered: the time of emptying of the renal pelvis and ureter, and the presence or absence of an obstructive lesion. The most practical method of determining the emptying time is by serial pyelography. Obstructive lesions are frequently demonstrated by a single pyeloureterogram, but occasionally it is quite difficult to distinguish functional from pathological disorders of the upper urinary tract except by a series of films. Serial pyelograms have been used for the past several years for evaluating cases of nephroptosis and determining the type of treatment to be instituted; and at times, kinks of the ureter and apparent stasis of the pelvis and ureter have been demonstrated to produce no interference with urinary drainage[2].

Although many articles have been written on the subject of nephroptosis, there seems to be no complete agreement among urologists as to the proper method of treatment. Lowsley[3] is of the opinion that before surgery is instituted, inadequate drainage should usually be proven; however, in certain cases, such as nephralgia, he advocates denervation and renal decapsulation. Braasch[4] has proven to his satisfaction that a movable kidney is rarely painful, and that nephropexy is indicated only when definite evidence of obstruction to renal or ureteral drainage exists, which will be demonstrated by a distortion or dilatation of the renal pelvis or ureter with resultant pyelectasis or ureterectasis. On the other hand, Bransford Lewis and others believe that if a movable kidney is demonstrated by supine and erect pyelograms, and especially if a ureteral kink is present, nephropexy is definitely indicated. Henline and Bray[5] believe that pain rarely results from kinking of the ureter and that surgery is seldom indicated or beneficial in a ptosed kidney unless stasis or interference with drainage can be demonstrated. They are of the opinion that an arbitrary limit of ten minutes should be sufficient for a normal kidney and ureter to empty, and that if bilateral serial pyelograms are made, the comparative study will demonstrate the presence and usually the cause of any obstruction which might be present. C. P. Mathe[6] has studied the movable kidney in regard to the production of hydronephrosis, and believes that renal mobility alone does not cause hydronephrosis; however, when the kidney descends and the upper redundant portion of the ureter sags, hangs, or comes in contact with aberrant blood vessels, with fibrous bands, or with its upper attachment to the perirenal fascia or

Presented before the North Carolina Urological Society on October 14, 1940.

1. I am indebted to Dr. O. S. Lowsley for permission to present these cases.

2. Moore, T. D.: (a) Simple Device for Serial Pyeloureterograms, J. Urol. 26:317-323, August, 1931; (b) Value of Serial Pyelograph in Diagnosis, J. Urol. 28:437-454, October, 1932; (c) Consideration of Ureter in Serial Pyelograms, South. M. J. 27:825-833, October, 1934; (d) Limitations of Intravenous Urography, South. M. J. 29:242-248, March, 1936.

3. Lowsley, O. S.: Anomalies of the Kidney and Movable Kidney, in Lewis: Practice of Surgery, vol. 8, chapter 4, 1929.

4. Braasch: Discussion of Acquired Renal Dystopia or Movable Kidney by Mr. Frank Kidd, J. Urol. 26:368-373, 1931.

5. Henline, R. B., and Bray, J. L.: Value of Serial Pyelograms in Nephroptosis, J. Urol. 38:620-633, December, 1937.

6. Mathe, C. P.: Intrinsic Causes of Hydronephrosis, J. Urol. 38:574-592, December, 1937.

to the posterior peritoneum, obstruction occurs, resulting in hydronephrosis. Hess[7], in his article on renal mobility, states that if a pyelogram is taken in deep inspiration, a perfectly normal kidney may appear to be ptotic. Thompson and Bumpus[8] demonstrated to their satisfaction that the majority of ureteral kinks are transient and occur in pyelograms at the order, "Take a deep breath and hold it." Moore[2c] believes that temporary relaxation of the ureter resembling atony or ureterectasis may occur, but its inconstancy in a series of films serves to differentiate it from dilatation due to mechanical obstruction, infection or disturbances of innervation. One is probably justified in stating that the majority of urologists agree that, if there is a demonstrable delayed emptying time, with or without hydronephrosis of a ptotic kidney, and if the pain is apparently due to distention of the renal pelvis, then nephropexy is indicated. It is in this type of case, with a ptosed kidney and pain, that serial pyelography is so helpful in deciding whether the pain is of renal origin or the result of disease outside the urinary tract. Although Moore in 1931 developed a practical inexpensive device which can be fitted to the ordinary Buckey diaphragm for making serial pyelograms, yet a review of the recent literature would lead one to suspect that this important diagnostic procedure has been more or less neglected by urologists up to this time. Moore's addition is a happy compromise between the single pyelo-ureterogram and the multiple urograms of Cumming and Jarre[9] using the cinex camera.

Moore[2a], Henline[5], Bray[5], Herbst[10], and others are of the opinion that the usual emptying time of a normal renal pelvis and ureter is not over ten to twelve minutes. At the Brady Foundation, any definite amount of dye remaining in the renal pelvis on the fifteen minute film is interpreted as delayed emptying.

Summary of Cases

Forty-two cases, or 89 per cent occurred in females, whereas only 5, or 11 per cent, occurred in males.

The right kidney was ptosed in 43 cases, or 90 per cent; bilateral nephroptosis was present in 4, or 10 per cent; and in no instance was there a unilateral ptosis of the left kidney.

Of the 28 cases without serial pyelography, 16, or 57 per cent, have had nephropexy, with relief of symptoms in 13, or 81 per cent of cases (chart 1). One patient died from the anesthesia (spinal and gas-oxygen). Another patient continued to have pain in the right upper quadrant post-operatively, even though the kidney was in excellent position. The third patient was relieved of her pain for three months after discharge from the hospital; then she had a recurrence of right sided pain, and a second nephropexy was performed elsewhere. Of the 12 patients who were not submitted to surgery, 7 have not returned for further observation and treatment; 3 have been relieved by ureteral dilatation; and 2 obtained relief by wearing kidney belts (chart 2).

CHART I

Cases Without Serial Pyelograms in Which Nephropexy Was Performed

Number of cases: 16 — 57 per cent of total number of cases without serial pyelograms.

Relief of symptoms: 13 — 81 per cent.

Remarks:

Three cases were not relieved.
One patient died from anesthesia.
One patient was temporarily relieved but had a second nephropexy elsewhere, three months after discharge from hospital.
One patient continued to have right upper quadrant pain (kidney in good position).

CHART II

Cases Without Serial Pyelograms Not Operated On.

Number of cases: 12 — 43 per cent of total number of cases without serial pyelograms.

Clinical relief by ureteral dilatation: 3 — 25 per cent.

Clinical relief by kidney belt: 2 — 16 per cent.

Remarks:

The 7 remaining cases did not return to the clinic.

Of the 19 cases in which serial pyelography was performed, 8 were found to have delayed emptying time (chart 3), while 11 demonstrated no delay in emptying of the renal pelvis and ureter (chart 4). Of the 8 patients with delayed emptying time, nephropexy was performed on 6 cases with relief of clinical symptoms. One of the 2 cases not operated upon had an associated cholecystitis for which a cholecystectomy was performed,

7. Hess, E.: Renal Mobility, J.A.M.A. 110:1818-1823, 1938.
8. Thompson, C. J. and Bumpus, H. C.: Ureteral Kinks, J.A.M.A. 94:771-772, 1930.
9. Jarre, H. A. and Cumming, R. E.: Cinex-Camera Studies of the Urinary Tract, J. Urol. 24:423-431, 1930.
10. Herbst, Wm. P.: Pyeloscopy, J. Urol. 26:233-239, 1931.

CHART III

Cases With Serial Pyelograms Demonstrating a Delayed Emptying Time

Number of cases: 8 — 42 per cent of total number of cases with serial pyelograms.

Nephropexy performed on: 6 — 75 per cent.

Remarks:

Clinical symptoms were relieved in all the operative cases.

One patient not submitted to surgery was a 74 year old emaciated female with a generalized visceroptosis. The other patient did not return to the clinic.

CHART IV

Cases With Serial Pyelograms Demonstrating Normal Emptying Time

Number of cases: 11 — 58 per cent of total number of cases with serial pyelograms.

Relief of symptoms by ureteral dilatations: 8 — 72 per cent.

Relief of symptoms by appendectomy: 1 — 9 per cent.

Remarks:

One patient continues to have right upper quadrant pain (gallbladder and G. I. series normal). Possible case of nephralgia.

One patient did not return to the clinic.

without relief of her pain in the right upper quadrant; however, she has not returned to this clinic for further observation. The other patient was an elderly, emaciated female with a generalized visceroptosis, whose general condition did not warrant any surgical procedure.

Of the 11 cases of ptosed kidneys with normal emptying time, 8, or 72 per cent, have been relieved of their symptoms by means of intermittent ureteral dilatation. One of these patients, a 35 year old single female, with pain in the right upper quadrant, had a retrocecal chronic appendicitis for which an appendectomy was done, with complete relief of symptoms. This patient had been referred to this clinic for nephropexy, since urological studies elsewhere had revealed a right nephroptosis. One patient did not return for further study, and one patient continues to have right upper quadrant pain. Her gallbladder and gastro-intestinal x-rays were normal. It is quite possible that the latter case is one of nephralgia.

Comment

One is rather surprised to observe that of 19 cases subjected to serial pyelograms, 11, or 58 per cent, were found to have normal emptying time. In the majority of cases of nephroptosis, serial pyelograms are performed only on cases in which it is suspected that delayed emptying is the cause of the pain. Had these cases not had serial pyelograms, they probably would have been subjected to nephropexy, and in all probability would have continued to have pain.

Not only in nephroptosis but also in any type of hydronephrosis due to ureteral obstruction by calculi, infection, aberrant vessels, or neuromuscular dysfunction, serial pyelography is definitely indicated. Of course, the majority of us do not have serial pyelographic trays in our offices, but I think that every hospital should have one. From this study, it would seem logical and practical for urologists to observe the pyelo-ureterograms immediately after developing the film, and if a nephroptosis or hydronephrosis is noted to obtain a film fifteen minutes after the injection of the contrast medium. This fifteen minute film would show whether or not there was delayed emptying time.

Summary

1. An analysis of 47 cases of nephroptosis has been been briefly presented. On 19 of these 47 cases, serial pyelograms were made to differentiate those with delayed emptying time from those in which the kidney pelvis emptied normally.

Eleven of the 19 patients on whom serial pyelograms were made were shown to have a kidney pelvis which emptied in normal time. Eight of these 11 cases obtained symptomatic relief by ureteral dilatation.

Eight of the 19 cases in which serial pyelograms were made were demonstrated to have delayed emptying time, and of these 8, 6 were completely relieved by nephropexy.

2. The serial pyelographic tray devised by Moore is a simple, practical method of studying the emptying time of the renal pelvis and ureter.

3. Nephropexy is rarely indicated or beneficial in cases of nephroptosis with a normal emptying time.

4. Rarely should nephropexy be performed when there is doubt as to the final result; it should be reserved usually for cases in which definite delay in emptying time is demonstrable.

The Effect of Totalitarianism on the Practicing Physician.—The nearer one approaches totalitarianism in government, the greater is the tendency to make the practicing physician an employee of the state rather than of the individual.—A. C. Callister: The Medical Profession's Ideals in Medical Service, Rocky Mountain M. J. 38:107 (February) 1941.

THE CLINICAL STATUS OF THE VITAMINS

RALPH L. FIKE, M. D.

WILSON

The purpose of this paper is to present concisely and conservatively some aspects of the clinical status of the vitamins. The vitamin alphabet during the past twenty-five years, and particularly during the past five years, has grown in length and latitude; new letters have been added, and some of the original have been subdivided.

A vitamin has been defined as "being one of a group of definite organic chemical substances, of widely different structures and physiologic action, present in minute amounts in nature, indispensable to normal nutrition yet itself contributing no energy or building material to the body." No vitamin can take the place of another, and an adequate amount of each is required at all times for normal growth and development, and for maintenance of health.

I know that each of you is impressed, as I am, by the multiplicity of vitamin preparations that are available, and it is indeed difficult to know what to prescribe, with both scientific and commercial development so rapid. Each week new preparations appear; new fields of scientific investigation are being explored; and reports continue to show evidence of the ever widening scope of vitamin therapy.

There are several methods of classifying the vitamins, but the most common division is into water soluble vitamins and fat soluble vitamins. The vitamin potency of a substance is usually expressed in terms of units. Each unit represents either a definite degree of biologic activity or a definite weight of the pure vitamin. Since the absence of any one of the vitamins from an otherwise balanced diet over a period of time produces a typical syndrome which is termed a deficiency disease, I am going to consider hastily the vitamins individually.

Vitamin A

Vitamin A is one of the fat soluble vitamins. It is known as the anti-ophthalmic vitamin and the anti-infective vitamin. Alpha, beta, and gamma carotene and cryptoxanthin are the precursors of vitamin A and have the ability to produce the characteristic response in the animal body.

Vitamin A is considered helpful in the following conditions: xerophthalmia; nyctalopia, or night blindness; hyperkeratosis of the skin; lowered resistance to infection; and retarded growth and development. Vitamin A is also employed as a supplement to the diet of expectant and nursing mothers.

Vitamin A is found chiefly in cod liver oil, halibut liver oil, apricots, carrots, butter, cheese, liver, egg yolks, and leafy green vegetables. This vitamin is stored to some extent in the liver, kidneys, and subcutaneous fatty tissue.

The international and U. S. P. units of vitamin A is the growth-promoting and anti-xerophthalmic activities of 0.6 micrograms of the international standard beta-carotene, or the equivalent amount of U. S. P., standard reference cod liver oil. The daily requirement of vitamin A for the child is 7,000 international units; for the adolescent, 9,000; for the adult, 8,000; and for expectant and nursing mothers, 10,000.

Vitamin B

Vitamin B is one of the water soluble vitamins. It is now known to be a complex mixture of at least six vitamins or vitamin principles. The best known of these are vitamins B_1 and B_2, both of these having been studied and identified.

Vitamin B_1, or thiamin chloride, is known as the anti-neuritic vitamin, the anti-beriberi vitamin, and the appetite stimulating vitamin. This factor was isolated and synthesized in 1936. Vitamin B_1 is stable except in the presence of alkalis or heat. With the synthesis of vitamin B_1, intensive study into the nature and symptomatology of beriberi became possible. Thiamin chloride today is used with gratifying results in the treatment of beriberi, in anorexia of dietary origin, and in the neuritis of pregnancy, pellagra, and alcoholism. Vitamin B_1 aids reproduction, promotes growth and lactation. The administration of thiamin chloride to cases of subclinical deficiency will often increase the appetite, produce a feeling of well-being, and relieve the symptoms arising from beriberi. It is valuable in relieving certain types of bradycardia and in certain cases of furunculosis.

Several methods of measuring thiamin chloride are used. The international and the

Read before the Seaboard Medical Association, Washington, N. C., December 5, 1940.

U. S. P. units are equivalent to the vitamin B_1 activity of 3.33 micrograms of thiamin chloride. One international unit is equal to 2 Sherman-Chase units.

Vitamin B_1 is found chiefly in rice polishings, yeast, wheat germ, cereals, nuts, egg yolk, lean pork, organ meats, and leafy green vegetables.

Vitamin B_2 (G) is known as the anti-pellagra and anti-dermatitis vitamin. It is water soluble and stable to heat. It is of value in treating pellagra, certain secondary anemias, neuritis, and cheilosis. Some authorities report that vitamin B_2 is essential to normal growth, and is of value in the prevention of cataracts, keratitis, and some intestinal conditions.

Vitamin B_2 is found chiefly in yeast, wheat germ, eggs, liver, and leafy green vegetables.

The unit of B_2 is the Sherman-Bourquin unit: the amount of vitamin B_2 which, when fed to rats deficient in the vitamin, will produce a standard growth response of 3 Gm. per week over a 28-day period.

The daily requirement of B_2 for infants is 300 Sherman-Bourquin units; for adolescents, 500; for adults, 800; and for expectant and nursing mothers, 1,000.

Nicotinic acid (amide) is the P. P. (pellagra-preventing) factor. It is water soluble and heat stable. It is a specific for pellagra. Nicotinamide has been used, with varying results, to relieve the distressing nausea, vomiting, and anorexia accompanying cases of radiation sickness, and to decrease porphyrinuria in pellagra and other conditions. There are also reports of treatment by nicotinic acid in association with thiamin chloride of a few cases of Vincent's disease, sulfanilamide cyanosis, and Meniere's syndrome. As yet, there is no unit dosage in terms of milligrams of nicotinic acid amide. The average daily requirement is 50 to 500 mg. The chief sources of nicotinamide are yeast, liver, wheat germ, and lean meat.

Vitamins B_3, B_4, and B_5 are still largely in the field of the unexplored. They have been studied experimentally in the laboratory, but as yet their clinical significance has not been established. However, the fact that deficiency of certain of these factors leads to pathologic changes in the test animals suggests that they may be of definite value in the treatment of human beings.

Vitamin B_6, or pyridoxine, has specific value in acrodynia in rats and microcytic anemia in dogs, and is essential for human nutrition. There are certain pellagric symptoms, such as abdominal pain and difficulty in walking, that do not respond to treatment without vitamin B_6. As yet there is no unit dosage for vitamin B_6. The average daily requirements are not known. The usual dose is 10 to 50 mg. Vitamin B_6 is found primarily in liver, rice, and yeast.

The various vitamin B factors commonly occur together in nature, and it is only natural to assume and expect that often better results are obtained with the whole complex than with individual factors.

Vitamin C

Vitamin C, or the anti-scorbutic vitamin, is water soluble. This vitamin becomes inactivated by oxidation and high temperature. Vitamin C was isolated from the adrenal cortex in 1932. It is a specific for scurvy, both acute and latent, and for some dental disorders, such as pyorrhea and dental caries. Vitamin C is of value in treating certain infectious states, such as rheumatic fever and tuberculosis. It is of importance in treating anemia and anorexia. Vitamin C increases the capillary resistance in certain diseases, such as hemorrhagic nephritis and thrombocytopenia.

The unit of vitamin C is the international unit, which is the amount equal to the anti-scorbutic activity of 0.05 mg. of standard ascorbic acid.

Vitamin C is found chiefly in citrus fruits, such as lemons, oranges, and grapefruit, and in tomatoes, cabbage, pineapples, and spinach.

The average daily dose of vitamin C for infants is 200 to 400 international units; for adolescents, 400 to 800; for adults, 400 to 800; and for expectant and nursing mothers, 500 to 1,000.

Vitamin D

Vitamin D, or irradiated ergosterol, known also as the anti-rachitic vitamin, is another of the oil soluble vitamins. Ergosterol is the precursor of vitamin D. It is present in the skin, and when the ultra-violet rays of direct sunshine or the proper artificial source of the vital radiation activate the ergosterol in the skin, it is converted into a number of substances. One of these, calciferol, is regarded as vitamin D.

Vitamin D is essential for the metabolism

of calcium and phosphorus, and an adequate amount of calcium, phosphorus, and vitamin D are necessary for bone formation and for proper glandular function. Vitamin D corrects infantile rickets, spasmophilia, and osteomalacia. It also promotes growth and increases resistance and muscular activity.

Vitamin D is present in cod liver oil, halibut liver oil, egg yolks, and irradiated foods.

The international and U. S. P. unit is equivalent to the anti-rachitic activity of 1 mg. of standard solution of irradiated ergosterol, or .025 micrograms of crystalline vitamin D. The daily requirement for infants is 300 international units; for adolescents, 600; for adults, 500; and for expectant and nursing mothers, 800.

Vitamin E

Vitamin E, or alpha-tocopherol, is known as the anti-sterility vitamin. It is an oil soluble vitamin. It is of definite value in certain cases of threatened abortion, having brought about successful termination of pregnancy in some such cases. Recent reports by various investigators point to vitamin E as being of value in the treatment of muscular dystrophy, muscular atrophy, and amyotrophic lateral sclerosis. It is reported as being of value in certain cases of polyneuritis due to arsenic therapy, and in these cases is given in conjunction with vitamin B_6. The daily requirement of vitamin E is 1,000 to 2,000 mg. of wheat germ oil. The Evans Burr unit is the minimum dose which will cure sterility induced by a diet deficient in vitamin E in the female rat. Vitamin E is found chiefly in wheat germ, egg yolks, lettuce leaf, and vegetable oil.

Vitamin K

Vitamin K, the anti-hemorrhagic vitamin, is fat soluble. The full clinical significance of vitamin K has not as yet been ascertained, but vitamin K is essential for the synthesis of prothrombin in man. It is of value in hemorrhagic diathesis of obstructive jaundice, in intestinal obstruction, and in other conditions where the prothrombin content of the blood is low. Recently synthetic preparations with vitamin K activity have been isolated. These are stable and readily obtained, thereby permitting a wide field of investigation with this new addition to the vitamin alphabet. Vitamin K is also used in the treatment of hemorrhagic disease of the newborn. Since the determination of the prothombin content of the blood reveals that the newborn infant possesses a smaller fraction of prothrombin complement than an adult, and since we cannot tell by antepartum examination of the mother's blood which newborn will have a deficiency, it is being advocated by some that a routine administration of vitamin K be given during the last month of pregnancy. Chief sources of vitamin K are alfalfa, green vegetables, hog liver fat, egg yolk, and soy bean oil.

The daily requirement is not known, but in administering vitamin K, if there is a deficiency of bile in the intestinal tract, bile salts are always given. The Thayer-Doisy unit is that quantity of vitamin K which gives a clotting time of ten minutes or less in chicks on a vitamin K deficient diet. Vitamin K may in the near future prove of great value to the clinician, the surgeon, and the obstetrician.

Conclusion

Vitamins are not a panacea. They have been used and are being used indiscriminately. A person who partakes of a normal balanced diet does not need the addition of vitamin supplements. However, we must not lose sight of the fact that in this day of stress and strain, of dietary fads, of malnutrition of economic origin, and of abnormal social environment, we do encounter and shall continue to encounter many people who do not partake of a proper diet, and it is in these that we must look for clinical and subclinical avitaminosis.

The Study of the Patient.—Your study of the patient should be skillful and intelligently complete, not needlessly comprehensive. If every known examination were made of every patient, much that goes undiscovered in diagnosis might be revealed, but who could survive the ordeal physically, psychically or financially? Certainly, a sufficiently complete diagnostic survey should be made of each condition until its nature is clear, but the routine performance of needless tests indicates a lack of skillful observation and thinking, dulls clinical acumen, penalizes patients, wastes time and material, and gives the public an incorrect view of the cost of sound medical care. Do not misinterpret—let the study be thorough, expand it as far as need be to solve a given riddle or to advance knowledge, but do not expect mere elaboration of procedure to replace your clinical sense, nor rely on it to impress your colleagues or your clientele. —Austrian, Charles R., M.D.: The Care of the Patient, New England J. Med. 223:697 (October 31) 1940.

VITAMIN K IN THE PREVENTION AND TREATMENT OF HEMORRHAGIC DISEASE OF THE NEWLY-BORN INFANT

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Despite numerous reports on the efficacy of vitamin K-active drugs in the prevention and treatment of hemorrhagic disease of the newly-born infant, the administration of these drugs has not been at all widespread. We believe that one reason for this is the fact that it has not been emphasized strongly enough to the profession, especially outside of the large teaching hospitals.

Although the incidence of clinical hemorrhagic disease is probably not over 1 per cent of live births, the impression is growing that this figure does not represent the incidence of all bleeding states associated with hypoprothrombinemia in the neonatal period. It has been shown conclusively by many workers that hemorrhagic disease is always associated with a concomitant lowering of the blood prothrombin, and that this may be prevented by the administration of vitamin K-active materials. It is true that one cannot expect vitamin K to lower the incidence of intracranial hemorrhage due to the tearing of a large blood vessel. However, we can expect it to lower the incidence of those cases characterized by prolonged oozing of blood. A case in point is that of an infant seen by us a few months ago, who developed a subdural hemorrhage on the third day of life, when the blood prothrombin time was definitely raised. If this infant had been protected by vitamin K, we feel sure that this slowly increasing hemorrhage would not have occurred.

A study is under way at the present time at Duke Hospital*, which confirms the findings of other investigators[1, 2] that this almost constant occurrence of hypoprothrombinemia during the first few days of life may be prevented by the proper use of vitamin K-active materials, and that no adverse effects result from their use. These substances are now available commercially from many of the larger pharmaceutical houses, and are inexpensive, so that by treating the mother, complete protection may be given to the infant at a cost of less than one dollar. These substances are derivatives of, or are closely allied to, the base substance 2-methyl-1, 4-naphthoquinone. This drug is very soluble in oil and slightly soluble in water, and comes under a variety of trade names†, in oil solution, tablets, or capsules. Derivatives with greater solubility in water are now appearing, which may be used orally, intramuscularly, or intravenously. The more water-soluble forms are preferable, since absorption does not depend upon normal fat absorption in the intestine, and the drug is tolerated better by a newly-born infant. Vitamin K will begin to exert its effect of lowering the blood prothrombin time of the infant very rapidly after intravenous injection[3], and within two hours of oral administration, but not for six to eight hours after the intramuscular injection of the solution in oil. Further work is being done on the dosage and effect of the newer water soluble compounds.

A satisfactory plan of treatment has been established in this clinic, in which the vitamin K is used in the form of 2-methyl-1, 4-naphthoquinone. Certain of the derivatives with increased water solubility will require about twice the dosage recommended below:

1. If the expectant mother is being followed regularly, 1 mg. of 2-methyl-1, 4 naphthoquinone is given by mouth daily during the last month of pregnancy.

2. If the mother is not seen until labor has begun, 6 mg. of 2-methyl-1, 4-naphthoquinone in oil, or its equivalent in aqueous solution, is given by mouth. The equivalent aqueous solution may be given intravenously. (The intramuscular injection of the drug in oil after the onset of labor requires too long a time for absorption to guarantee protection to the infant.)

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* This study is being carried out with the kind cooperation of the Obstetrical Service of Duke Hospital.

† Proklot—Lilly; Kayquinone—Abbott; Thyloquinone—Squibb; Quino-thrombin—Lederle.

1. Shettles, L. B., Delfs, E., and Hellman, L. M.: Factors Influencing Plasma Prothrombin in the Newborn Infant: II Antepartum and Neonatal Ingestion of Vitamin K Concentrate, Bull. Johns Hopkins Hosp. 65:419-426 (Nov.) 1939.

2. Waddell, W. W. Jr., Guerry, DuP. III, and Birdsong, McL.: The Role of Vitamin K in the Etiology, Prevention and Treatment of Hypoprothrombinemia and the Hemorrhagic Diathesis of the Newly Born, South. M. J. 33:974-979 (Sept.) 1940.

3. Norcross, J. W., and McFarland, M. C.: Intravenous Use of 2-Methyl-1, 4-Naphthoquinone in 'Hypoprothrombinemia, J.A.M.A. 115:2156-2161 (Dec. 21) 1940.

3. If the mother has not received vitamin K daily for at least one week before delivery, and the larger dose has not been given at least six hours before delivery, the infant should be given 1 mg. of 2-methyl-1, 4-naphthoquinone as soon as possible after birth, either orally, intravenously, or intramuscularly. A double guarantee of protection will be afforded if *all* infants, regardless of prenatal treatment, are given this added dose of 1 mg.

4. In an unprotected infant, any evidence of bleeding from the umbilicus, from the gastro-intestinal tract, or intracranially, should be treated as a case of hemorrhagic disease. One milligram of 2-methyl-1, 4-naphthoquinone should be given immediately, by the intravenous route, or by mouth. It is not necessary to give blood except to treat anemia resulting from blood loss. Fresh blood by vein will restore the blood prothrombin level, but only temporarily if the prothrombin level is very low. It has been shown that intramuscular blood is of little value in treating hypoprothrombinemia[4].

The accompanying table illustrates the course of six unprotected infants born at Duke Hospital who showed evidence of hemorrhagic disease, or a markedly prolonged blood prothrombin time during the course of this study. Case 3 illustrates the point that the intramuscular injection of 2-methyl-1, 4-naphthoquinone in oil to the mother late in labor does not protect the infant. All the other cases show a very satisfactory recovery of the blood prothrombin from the administration of vitamin K. Case 6 is of interest in that with the prolonged prothrombin time so soon after birth, a further drop in the blood prothrombin would be expected if treatment had been withheld. Had an intracranial hemorrhage resulted following a

4. Lawson, Robert B.: The Treatment of Hypoprothrombinemia (Hemorrhagic Disease) of the Newborn Infant, J. Ped. 18:224-234 (February) 1941.

Case	Age	Prothrombin Time*	Treatment†	Remarks
1. C. P.	5 hr.			Emesis dark material.
3260 Gm.	13 hr.	50 sec.	1 mg. K in oil by mouth and 1 mg. intramuscularly.	Emesis dark material and blood.
	18 hr.	45 sec.		
	37 hr.	32 sec.		Large black stool.
	57 hr.	24 sec.		Complete recovery.
2. F. L.	12 hr.	32 sec.		
3425 Gm.	60 hr.	90 sec.		Large cephalhematoma rising.
	61 hr.		1 mg. K in oil by mouth.	
	62 hr.	38 sec.		No other evidence of bleeding.
3. B. H.				
1650 Gm.			1 mg. K in oil intramuscularly to mother 4 hr. antepartum.	Eclamptic mother; feeble, premature infant.
	10 hr.	43 sec.		Cyanotic spells.
	22 hr.	8 min.		Attempt to give vitamin K by mouth was unsuccessful and the infant died with terminal bleeding from the nose. Autopsy showed intracranial hemorrhage, and hemorrhage in lungs and esophagus.
4. C. H.	1 hr.	28 sec.		
4210 Gm.	48 hr.	135 sec.		
	49 hr.		1 mg. K in oil by mouth.	
	50 hr.	45 sec.		No evidence of bleeding.
	62 hr.	26 sec.		
5. W. C.	27 hr.	35 sec.		
3520 Gm.	72 hr.	116 sec.		
	73 hr.		1 mg. K in oil by mouth.	No evidence of bleeding.
	73¾ hr.	85 sec.		
	88 hr.	31 sec.		
6. R. G.				Difficult delivery. Infant with Erb's palsy.
4570 Gm.	3 hr.	85 sec.		
	4 hr.		1 mg. K in oil by mouth.	
	15 hr.	40 sec		No evidence of bleeding.
	27 hr.	30 sec.		

*All prothrombin times are done by the direct micro-method described in another publication(4). Normal adult controls gave micro-prothrombin times of 19-20 seconds.

†The drug (K) used in these cases was 2-methyl-1, 4-naphthoquinone supplied through the courtesy of Eli Lilly & Co.

delivery difficult enough to cause an Erb's Palsy, such as in this case, it would have been customary to attribute the intracranial hemorrage to trauma alone. We feel that many cases of so-called traumatic intracranial hemorrhage would not occur if the infants were protected as this one was.

Summary

1. A plan is suggested for the routine administration of vitamin K to women in the last month of pregnancy, and to newborn infants.

2. Illustrative cases of hypoprothrombinemia are reported briefly.

3. It is urged that all physicians adopt a plan for the routine use of vitamin K or one of its substitutes for the prevention of hemorrhagic disease of newly-born infants.

NEUROLOGICAL, ORTHOPEDIC AND THERAPEUTIC ASPECTS OF CEREBRAL PALSY

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In recent years the belief that a neurological birth lesion carries with it an altogether hopeless prognosis has changed; it is now realized that the child who has a defect can compensate for it to a certain degree. Although central nervous tissue destroyed by injury or disease can never regenerate, unimpaired nervous tissue can by stimulation to increased activity, be made to substitute for the function of the missing cells. Therapy based on this fact was first used for the nervous system lesions of men wounded in the World War and has since been applied in injuries resulting from industrial accidents.

From a therapeutic standpoint it is important to divide the cases of lesions of the central nervous system into three groups on the basis of age of onset: first, patients who were affected at or before birth; second, patients who have acquired the lesion during childhood or youth, usually from trauma or some acute infection; and third, patients who have developed the affection during later years as a result of a disease or accident of adult life. The first group, which includes both congenital cases and those injured at birth, is composed of patients who have never known normal motor function. The second and third groups are more nearly alike, as the damage did not occur until after the primary motor patterns had been established. There may, however, be great differences between the second and third groups since there is theoretical ground for the belief that in a child there is more unused nerve tissue capable of stimulation for the re-establishment of the lost function.

Phelps has made a thorough study of the first group[1]. He calls attention to the fact that at one time all paralytic children, except the flaccidly paralyzed or infantile paralysis cases, were grouped together and called "spastics." Spastic is not an accurate term, because less than 50 per cent of these children show spasticity. Hence in referring to these patients it is better to use the term cerebral palsy.

Recent neurological studies[2] have made possible a useful subdivision of the first group. Crothers[2a] studied the defects of birth injuries and of congenital anomalies of the central nervous system and discussed their differentiation. His patients were originally divided into those with pyramidal and those with extrapyramidal lesions. Subsequently the pyramidal system has been studied thoroughly by neurologists and neuro-physiologists, and the chief characteristic of pyramidal injuries has been shown to be spasticity, or stiffness and tenseness of the muscles. It has also been demonstrated that in birth injuries or in congenital anomalies the pyramidal system lesion may involve especially the motor area (area 4 of Brodmann) or the premotor area (area 6)[2a, c]. Spasticity is chiefly caused by in-

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Acknowledgment is made to Dr. Alfred R. Shands, Jr., for directing the preliminary surveys. We are indebted to Mr. J. Thomas McIntire, of the Vineland Training School, Vineland, New Jersey, for periodic mental testing of our cerebral palsy patients.

1. Phelps, Winthrop M.: Personal Communication.

2. (a) Ford, Frank R.; Crothers, Bronson; Putnam, Manion C.: Medicine Monographs, XI, Baltimore, Williams and Wilkins Co., 1927.

(b) Brodmann, K.: Vergleichende Lokalisationslehre der Grosshirnrinde, Barth., Leipzig, 1909.

(c) Fay, Temples: Behavior Problems in Children; The Importance of Training and Conditioning, Child Research Clinic Series, Woods Schools, Langhorne, Pa. 1:5-44, 1935.

(d) Phelps, Winthrop M.: Cerebral Birth Injuries: Their Orthopedic Classification and Subsequent Treatment, J. Bone and Joint Surg. (October) 1932.

(e) Phelps, Winthrop M.: The Therapeutic Significance of the Mechanical Analysis of Motor Handicaps, in Proceedings of the Second Institute on the Exceptional Child, The Research Clinic of Woods Schools (October) 1935.

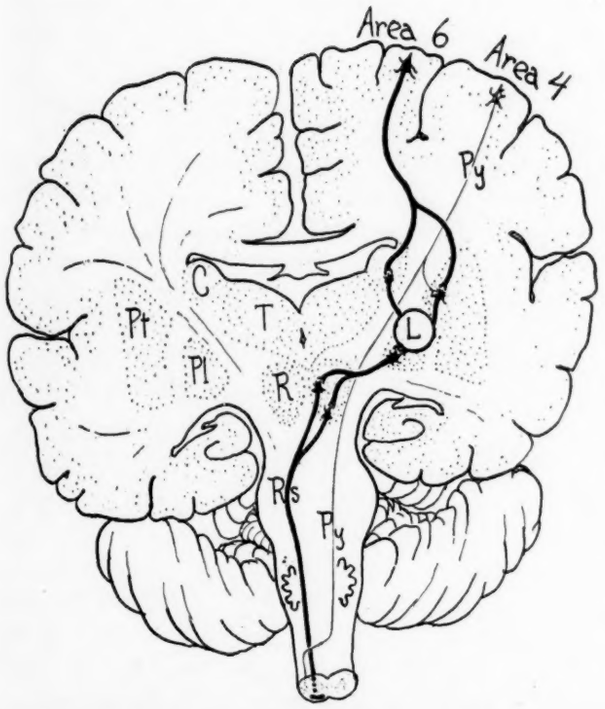

Diagram of the extrapyramidal chain of neurons (heaviest lines) and the usual site of the lesion in cases of athetosis and dystonia, in their relation to other structures. C—caudate nucleus; L—lesion; Pl—globus pallidus; Pt—putamen; Py—pyramidal tract; R—reticular substance; Rs — reticulospinal tracts; T — thalamus. Courtesy of Dr. Tracy J. Putnam and The Journal of Bone and Joint Surgery.

volvement of area 6. As Fay and others pointed out, in lesions affecting only area 4 there may be flaccid paralysis of the extremities from cortical damage[1]. Area 4 is seldom involved alone, however, and when area 6 also is damaged, spasticity usually predominates. Little[3], in 1843, was the first to describe the syndrome which results from the involvement of these important parts of the pyramidal system.

The extrapyramidal cases have been found to result from defects of the various basal nuclei, and have been classified as bulbar, cerebellar, thalamic, and other syndromes. These syndromes are partly proved and partly theoretical, the exact function of the various parts of the basal nuclear mechanism not having been proved. Since the internal capsule, containing the pyramidal fibers, passes through the basal nuclear mechanism, extensive hemorrhage in the basal area may involve also the internal capsule and produce, in addition to the basal syndrome, a spasticity from injury to the pyramidal system.

3. Little, W. J.: Course of Lectures on the Deformities of the Human Frame, Lancet 1:350-354, 1843-1844.

The foregoing neurological considerations form a basis for the diagnosis and subclassification of cerebral palsy. In the individual case, however, our practical interest lies not so much in establishing the exact neuropathology as in determining clinically the type of paralysis affecting the patient, how his muscle power deviates from the normal, and what can be done to lessen his handicap.

It is of practical importance to recognize promptly the symptoms of a neurological lesion dating from birth. The early diagnosis of such a lesion is usually difficult. Klingman[4] in a study of the histories of new born infants with motor disabilities found certain characteristic features. There are convulsions, immaturity, abnormal somnolence, excessive crying, asphyxia, apneic attacks, irregular breathing, difficulty in suckling, rigidity, opisthotonos, slow rhythmical adduction and abduction, persistent singultus, yawning, and frequent vomiting. Some of the symptoms are not seen until the latter part of the first year when convulsions and development of static functions can be noticed; then, as myelinization in the nervous system becomes complete, the varying pictures of spasticity, athetosis, ataxia, etc., can be seen.

Both the birth history and the physical signs are helpful in suggesting the pathogenesis of the lesion[2a, c]. If the former appears normal and the neuromuscular difficulty is symmetrical, the lesion is in all probability the result of a *congenital malformation.* On the other hand, if the history includes premature labor, extended labor, primiparity, poor obstetrics, precipitate delivery, or post-natal hemorrhage, the lesion is probably the result of a *birth injury.* If the birth history and pregnancy include no irregular symptoms, if the trouble manifests itself after infection and if the somatic involvement is irregularly distributed, the lesion is likely to be progressive.

For orthopedic treatment, it is necessary not only to know something of the remote cause but also to consider the total functional ability, mental and physical, of the individual. In outlining the therapy used at the Cerebral Palsy Clinic we are guided by Phelps'[2d] classification which was made on a motor basis and included the following groups: (a) spasticity, (b) athetosis, (c) incoordination or ataxia, and (d) tremor. He

4. Klingman, O.: Neurological Aspects of the Birth Injured, N. Y. State M. J. (October) 1934.

used a fifth type, overflow or synkinesia, which is often associated with spasticity, athetosis, and incoordination. In group *a* spasticity is the outstanding characteristic, the involved muscles being hyperirritable and the tendon reflexes hyperactive to all stimuli. Clonus and a positive Babinski reflex are often present. Usually there is absence or diminution of the abdominal and cremasteric reflexes. The stretch reflex, which Phelps[2d] considers the most characteristic sign of spasticity, is always present. As an illustration he points out that if extension of the elbow of a spastic arm is willed, the stretching of the biceps causes a contraction of the biceps resulting in a characteristic resistance to extension. This uncontrollable contraction is the difficulty which occurs every time the antagonist of a spastic muscle is willed to contract. The source of the difficulty is in the pyramidal system.

In pure athetosis (group *b*) the pyramidal system is not involved[2d, 5]. In this type of palsy there is an involuntary series of motions usually proceeding from the proximal to the distal muscle group, superimposed on and independent of the purposeful movement. The stretch reflex is absent. The tendon reflexes are normal and there is no clonus. The Babinski reflex may or may not be present, and the abdominal and cremasteric reflexes are usually active. The athetoid movement is absent during complete relaxation and during sleep. In athetosis, involuntary motion is superimposed upon normal voluntary motion. The volitional use of the muscles controlling the organ is normal, but the willed motion is modified and distorted by involuntary muscle contraction. For example, when the athetoid patient attempts to drink from a glass he may be sufficiently relaxed and quiet in his automatic controls to grasp the glass. When, however, his higher centers become engaged in the thought of drinking, their quieting effect is lost; involuntary motions then proceed from the damaged basal centers, greatly distorting the purposeful movement. The source of the trouble is in the basal region of the brain where automatic control centers are located.

In incoordination or ataxia (group *c*) there is an impairment of cerebellar control resulting in inability to carry out desired movements in the desired directions, because the kinesthetic sense is lost. In such patients the disturbance of the proprioceptive mechanism causes a characteristic loss of equilibrium in walking and standing.

Overflow may be associated with any of the above palsies. It is involuntary motion in one group of muscles resulting from voluntary attempts at motion in another group. It may be limited to the face or to one or more of the extremities, or it may be generalized. A common example is the facial overflow or grimacing which accompanies voluntary motion of the extremities.

Tremor (group *d*) is characterized by involuntary rhythmical, recurrent contractions which may be limited to a single muscle or muscle group. The tremor pattern is unchanged by superimposed voluntary motions.

It is significant to note that rarely does one of the above classifications occur in pure form. As a rule one type will dominate the picture with evidence of other disturbances present.

The aim of the orthopedic study is to supplement the neurological diagnosis in order to determine the practicability and advisability of treatment. The relation of the motor disturbance to voluntary motion must be studied with the idea of therapy in mind.

The mental status of patients with nervous system lesions does not show a regular distribution along the learning curve. It is found that their mental functions are irregular in that they have special abilities and disabilities. The patients whose lesions are in the basal region of the brain usually have normal minds. When the lesion is in the pyramidal system, other centers involving concept formation are likely to be involved and the intelligence quotient is very irregular. Normal expression is often so impeded by neuromuscular difficulties that the individual may be rated as a moron or even as an idiot. Likewise many good minds are retarded by the limited environment to which the patient is confined because of the neuromuscular difficulties. The educator's duty is first to offer such a patient a measuring scale which will reveal his true mental status and then to adjust the academic subjects to his capacity. A few psychologists have adapted certain standard tests to meet the complicated mental and physical limitations of these patients. McIntire has modified the Binet test by substituting material for measuring the mental function previous-

5. Tilney and Riley: Form and Function of the Nervous System, New York, Paul B. Hoeber, 1938, p. 851.

ly masked by the physical disability. This test reveals the speed of learning and the mental capacity of the patient.

Establishment of the Clinic at Duke University

In 1937 a grant was made to Duke University for a study of the educational and medical problems presented by children affected by cerebral palsy. The grant was made with the realization that this type of child and his many perplexing problems presented an obligation to the practicing orthopedist. During the first year of work, public and private surveys were made, hospital files reviewed, and data tabulated. The result of these studies was the establishment of a dormitory of twelve beds for the treatment of children showing a nervous system lesion dating from birth and manifesting itself in motor disability. The dormitory was opened in March, 1938, as a part of the Division of Orthopedic Surgery of the Duke University School of Medicine, with other departments cooperating as needed.

The primary purpose of the clinic is to provide a practical approach to the treatment of these children, and to fit them for the environment in which they are to live. Also it is desired that the graduates of the school of medicine as well as the graduates of other departments of the university should realize the potentialities of this type of child.

Detailed examinations to establish the nature and distribution of the neuromuscular losses is necessary before treatment can begin. On one afternoon of each week the facilities and personnel of the Orthopedic Division of Surgery are available for the preliminary examination and classification of new cerebral palsy patients. A careful study of the muscular system helps in ascertaining the location and type of lesion, and provides a basis for determining the nature of treatment.

Treatment[6]

The most essential and the most beneficial treatment of cerebral palsy is motor training. The acquisition of the ability to relax voluntarily is fundamental to motor training. Conscious relaxation is necessary to the spastic patient to prevent muscle block brought about by the dispersed stimulus as it comes simultaneously to synergistic and antagonistic muscle groups. To the athetoid patient relaxation is necessary for quieting the voluntary control which indirectly influences the automatic centers.

Nothing can take the place of the "softness" which comes through relaxation of the overly-stimulated muscular system. The idea of relaxation may be conveyed to the child in the following ways: (1) Ask him to see how quiet he can remain for a count of ten and later for longer periods, (2) make him conscious of irregular movements when they occur, and (3) contrast for him the feel of a relaxed muscle group with that of a tense, contracted group. Addoms[6a] states that the patient should strive to cultivate the memory of muscular sensations in order to recall the difference in feeling between relaxation and tension. The instructor can facilitate this response by using verbs which convey a concept of the result desired; for example, "soften" or "loosen" is more significant than "relax". Addoms[6a] also suggests that we give directions which appeal to the child's imagination, such as, "Feel soft like a kitten. Make this muscle feel like molasses. Feel as if you were melting. Feel as heavy as a bag of flour. Feel as if you were sinking down in a mattress." Avoid the use of negative commands; for example, a child in being taught to crawl should be told to "soften like a kitten," instead of "don't tighten." When the child who habitually holds his shoulder girdle fixed in a high position is given the idea that he is walking with a lead weight from each elbow, his shoulders have a tendency to drop to the natural level as imagination releases the tension throughout the body. Addoms also illustrates how tension may be released through the neuromuscular mechanism by having the patient count rhythmically by three's or two's, consuming his excess energy by this mental process.

When relaxation has been mastered, exercise treatments are begun. The first ex-

6. (a) Addoms, E. C.: Treatment of Birth Injured Children, J. Health and Physical Education, (September, October) 1936.
(b) Doll, Melcher, and Phelps: Mental Deficiency Due to Birth Injuries, New York, Macmillan Company.
(c) Pusitz, M. E.: The Treatment of Cerebral Palsies From the Standpoint of the Physical Therapist (Read before the Eighteenth Annual Convention of the American Physiotherapy Association, Denver, Colorado, June 27, 1939).
(d) Rutherford, John L.: Spastic Paralysis, The Physiotherapy Review, vol. 19, no. 6 (November, December) 1939.
(e) Klingman, W. O., and Earl A. Carlson: Observation Factors Inhibiting Choreoathetosis, Bull. Neurological Institute, V., New York City, (August) 1936.
(f) Cleveland, David: The Relationship of Physical Therapy and Neurology, The Physiotherapy Review, vol. 18, no. 6 (November, December) 1938.

ercises are simple passive motions at the large proximal joints—namely, the shoulder and hip[6b].

Motion at the shoulder can be considered to consist of three pairs of movements: forward and backward flexion, abduction and adduction, and internal and external rotation. After the patient has learned to relax the muscles of the shoulder joint for several minutes at a time, each of these three pairs of motions can be started passively to a simple rhythm or count. At first the movements must be slow and of small range in order not to stimulate undesired antagonistic muscular contractions.

When the patient has made the motions a part of himself, they appear automatically at the start of the accompanying count or rhythm. If spastic contraction or overflow occurs, the instructor puts the motion through passively. The patient is not allowed to execute the movement without assistance until the entire range of motion of the joint is smooth, but he is encouraged to assist in the movement in the proper rhythm.

Motion at the hip also can be considered to consist of three pairs of movements: flexion and extension, abduction and adduction, and internal and external rotation. The association of hip movements with count or rhythm is built up as in the case of the shoulder, and the transition from assisted passive motion to active motion is made. Finally the exercises are built up until the movements are those of locomotion. Attempts at balance are not allowed until the previous movements can be made smoothly without weight-bearing.

With slight modification this program of motor training is used for patients of each of the main types of cerebral palsy[6b]. In athetosis, as in spasticity, the training usually starts with reciprocal movements of the large joints. Because of incoordination due to athetoid motions of the erector spinae muscles, it is sometimes necessary to begin with muscles of the trunk rather than with those of the shoulder and hip. Passive reciprocation is taught and built up finally into active movements. Athetoid motions are decreased by reducing sensory stimuli. The patient must learn movement from the relaxed position without interference from the athetosis. At the beginning of any athetoid motion, the instructor should stop the patient's exercises and have him return to the position of relaxation.

In the treatment of overflow, relaxation does not play so large a part, as overflow occurs only when active motion is attempted. For this reason chief emphasis is placed upon the teaching of smooth, active, reciprocal movements. The acquisition of speed and amplitude, which tend to bring out the overflow, is often slow.

The treatment of primary incoordination does not require the teaching of relaxation. In pure incoordination the voluntary motor control is not involved; hence the teaching of reciprocal motion resembles closely the training of any awkward person in the performance of skilled acts. If joint sense is absent, the instructor begins with active motion, trying to make the patient conscious of movement at the joint. In incoordination the phase of passive exercise training is shorter than in either spasticity or athetosis.

The treatment of non-intention tremor is much the same as that of athetosis. The tremor is quieted by relaxation, and reciprocal motion is then started.

Advanced treatment of all of the main types of cerebral palsy consists of combining simple reciprocal motions, such as elbow flexion and supination, hip flexion and knee flexion, or abduction and adduction of both lower extremities. When such combinations are successfully carried out, more advanced ones are added.

Speech training follows the same lines of development as that of other muscle groups[2d]. In the spastic patient there is incoordination between the intercostal muscles and the diaphragm; as the patient expands his chest the diaphragm relaxes instead of contracting, and little change of air is available for voice or articulation. The instructor works for reciprocal motion and then for coordination, giving words such as "boost," "bounce," "leap," and combining them with a rhythmical count. The exercise is begun by having the patient breathe rhythmically while the instructor counts very slowly and quietly.

Since the diaphragm is the most fundamental part of the speech mechanism, a large part of the speech problem has been solved when the patient has learned conscious rhythmical breathing for speech. Spasticity of the larynx causes difficulty in modulating the volume of speech, whereas athetosis impairs the control of pitch. For athetosis training, chanting and humming are stressed.

Another major source of speech difficulty is the impairment of articulation. There may be no coordination between the lips and the tongue. The patient may substitute tongue sounds for lip sounds, or back tongue sounds for front; his spasticity or athetosis may be so severe that he can make no clear tongue letters. The muscles may be quieted by rhythmic counting. The instructor teaches one sound at a time according to a carefully planned phonetic system. A feeling for the intra-oral position at which each sound is made must be learned before the sound is articulated. The vowels, "ah, ay, ee, oh, oo," which are made chiefly by means of position of the lips and breath support, are taught first. Combinations are then made to form the diphthongs, such as "ah-ee," or "aw-oo". After the vowels have been learned, the vowel sounds should be stressed repeatedly. The position of consonants is taught and they are allowed to slip in. Diction is then developed by selected rhymes, and the timing and phrasing of speech improve as the feeling for sound is mastered.

The progress of speech training is slower with the spastic patient and more erratic with the athetoid. In both groups the same methods are followed, with the realization that in the spastic patient the stiffness comes from muscle block, and in the athetoid, the uncontrolled motion is superimposed upon voluntary movements.

For many patients in the spastic group surgical treatment is helpful. The operation itself, however, cannot be regarded as adequate treatment unless accompanied by careful and prolonged conservative measures, and in most instances the surgical treatment of these cases is an auxiliary to the more important motor training. Surgery is unquestionably contraindicated when the condition is a progressive one or when the patient possesses too little mental capacity to cooperate in the necessary post-operative muscle training. Immediate operation should never be done. A period of conservative muscle training and close observation should always be carried out first and this is often productive of clinical improvement which modifies and occasionally eliminates the surgical treatment.

With these limitations of the surgical treatment in mind the orthopedist can, in selected cases, choose beneficial operative procedures. Because of the great variety of operations which have been devised and the many factors peculiar to each individual case, the choice of operation is difficult and calls for trained surgical judgment. Many operations which seemed at one time to have great promise have later proven unsatisfactory and have been virtually discarded. The Forster operation of section of the posterior nerve roots at their entrance into the spinal canal, and the Royle operation of sympathectomy have not found wide application.

Operations useful in selected cases of cerebral palsy include procedures upon the motor nerves, the muscles and tendons, and the bone. In our experience, one of the most valuable surgical procedures in the spastic group is the Stoeffel neurectomy. In this procedure the aim is not to paralyze the muscle group, abolishing its function, but to produce in the stronger muscles a loss of power sufficient to result in improved balance and hence increased capability for muscle training. This operation has been most successfully used on branches of the obturator nerve for adductor spasm, on sciatic nerve branches for hamstring spasm, and on the internal popliteal nerve for spasm of the plantar flexors. The same procedure is used at times in spastic pronation of the forearm and flexion of the wrist and may be applied to the motor nerves of any spastic muscle. At times a procaine injection in the motor trunk is used as a preliminary step to determine the effect of throwing certain muscles temporarily out of function. Alcohol injections are sometimes used to produce a paralysis of several months' duration, thereby facilitating training of the antagonistic muscles. It is difficult to estimate, however, the duration of the paralysis after the alcohol injection, and in most cases a Stoeffel operation is preferable.

Tendon and muscle operations include tenotomy, tendon lengthening, and tendon or muscle transplantation. Tenotomies and tendon lengthenings must be planned with the greatest of care to avoid an undesirable over-correction of the pre-operative condition. Lengthening of the Achilles tendon is rarely indicated. Occasionally one muscle of a group may be tenotomized to reduce the total group power; thus, tenotomy of the adductor longus muscle is often quite helpful, leaving the remaining muscles of the adductor group in better balance with the abductors. Muscle or tendon transplantation must be planned with great care according to the requirements of the individual

case. Before any operation upon tendon or muscle, adequate correction of the deformity must be carried out by the release of any severe fibrous contractures; and after operation, the patient must be immobilized in an over-corrected position, and the subsequent physical therapy must be meticulous.

Only in carefully selected cases are bone operations indicated. The most useful of these is subastragalar arthrodesis for varus or valgus deformity of the foot interfering with the gait and persisting despite conservative measures.

Summary

1. The major types of cerebral palsy—namely, spasticity, athetosis, incoordination, and tremor—are discussed, and the pathological changes and clinical differentiation of the several types are reviewed.
2. A clinic for children afflicted by cerebral palsy conducted by the Orthopedic Division of Surgery at the Duke University School of Medicine is described.
3. The motor education methods, speech training, and surgical procedures used in the treatment of cerebral palsy are outlined.

Diagnosis of the Normal Heart.—Many instances occur in which the physician appears reluctant to express the opinion that the heart is normal. The explanation of this attitude is found in several sets of circumstances. He may lack confidence in the accuracy of his observations or their interpretations. In spite of the absence of incriminating symptoms and signs, his reluctance to tender a positive opinion may be motivated by the fear that serious disease may be present yet undetectable. Again, in the absence of evidence of disease the physician is hesitant to commit himself to the verdict that the heart is normal on the presumption that if the heart is normal now, disease may supervene later and he may thus be censored for not having recognized the abnormality at an earlier time.

Indecision of this character is lamentable because it comprises that form of practice which contributes so generously to the ever-existent horde of cardiac neurotic patients who become so convinced of nonexistent disease that their very existence becomes a horrible eternity of fear and uncertainty. Perfection in diagnosis is as yet not one of the attributes of mortal man and the physician must accept this premise, unhappy as it may be, and willingly accept the hazard of error when made in a conscientious attempt to help rather than to try to avoid such error by always leaving a portal of exit open at the expense of human anguish. Little doubt exists that more errors in diagnosis occur as results of such evasive methods than as the results of the method of conscientious conviction.—F. A. Willius: A Talk on the Recognition of the Normal Heart, Proc. Staff Meet. Mayo Clinic, 15:440 (July 10) 1940.

A PLEA FOR EARLY DIAGNOSIS OF CANCER

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The early recognition of cancer anywhere in the body is the most important factor in lowering the mortality in this disease. I believe that most mistakes that medical men make in any field, and particularly in this one, are due to the fact that they do not take the time or trouble to investigate. A surgeon with any considerable experience can recall many advanced cases of malignancy that had been overlooked earlier simply because the examining physician had not been thorough. Some wag has said that "the difference between the ordinary doctor and the specialist is a rectal examination." The crusade that has been going on for the past few years has made intelligent people cancer conscious, and many patients now come in for an examination to rule out this condition. This places a great responsibility upon the physician, and if there is any doubt about the true pathology in the case, he should either do a biopsy, if such is practical, or request a consultation. The public has been made so aware of cancer that there has been some improvement in the early diagnosis of the disease, but I believe that any further progress must be made by the practicing physicians.

We have been taught that the cancer age begins after 40. This is true, generally speaking, but in the past year I have seen two cases that show that cancer cannot be ruled out because of age. One was an inoperable cancer of the rectum in a man 31 years old who had been treated for hemorrhoids. Another was carcinoma of the stomach in a woman 35 years old who had been treated for anemia.

The great difficulty in the early diagnosis of carcinoma is that the generally accepted signs and symptoms of malignancy may not present themselves until the late stages, when the patient's chance of recovery is lost.

In order to bring out a few salient points in everyday methods of recognizing this

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Presented as part of a Symposium on Cancer, Ninth District Medical Society, April 4, 1940.

condition, we will consider in order the most common locations of cancer—namely, skin, breasts, gastro-intestinal tract, and genito-urinary tract. Approximately 95 per cent of malignancies occur in these locations. Realizing that the general practitioner is the man on whom the greatest responsibility falls in the early diagnosis of cancer, and that he does not have at hand all the equipment and assistance that some of us do, we are trying to pass out certain facts and findings that will at least arouse his suspicions enough to cause him to seek further aid in establishing the true pathology.

Skin

Malignant growths in the skin are usually recognized by sight and touch. Any lesion that does not heal by ordinary means in a reasonable length of time should be regarded as suspicious and should be excised with the cautery or knife and examined pathologically. It is always important to determine the type of cancer for the purpose of prognosis and therapy; squamous cell and basal cell carcinoma of skin, for example, behave in an entirely different manner.

Breasts

No examination of the female past 30 years of age is complete without a breast examination. Any lump in the breast should be removed and examined histologically, and treatment should be administered according to the type of pathology present. I would like to give a brief case report as illustration: In 1929 a young lady presented herself with a lump in her right breast. She was 33 years old at that time. We removed it, and pathological examination showed it to be a fibroma. In 1936 she returned for a routine health examination, and at this time I found a small movable tumor at the lower pole of her left breast. Considering what she previously had in her other breast, I thought she had another fibroma, and excised it. Pathological examination this time showed it to be carcinoma. I then did a radical mastectomy, and followed it by x-ray therapy. At the present time, four years later, she is perfectly well and has no evidence of any return of her trouble. The importance of a careful routine examination is brought out by the fact that she was completely unaware of this last tumor until we found it. The fact that she had had fibroma in the other breast would have made it easy to consider this tumor of no consequence, and her opportunity of recovery would have been lost.

Genital Tract

The death rate in the United States from cancer in this situation is approximately 10,000 annually. It has been established[1] that 20 per cent of the women who die between the ages of 45 and 60 die of cancer; approximately one-third of these die with cancer of the uterus, and 90 per cent of the cases of cancer of the uterus begin in the cervix. It seems to me that there is a wonderful opportunity for us to improve our statistics. Carcinoma of the womb almost always begins with cancer of the cervix. These women are around the menopausal age, *usually*. Any unusual vaginal discharge, intermenstrual bleeding, or bleeding following intercourse, no matter how slight, deserves an immediate and thorough investigation. The early diagnosis of cancer of the cervix is based entirely on objective findings, with the exception of the symptoms mentioned above. Pain, anemia, cachexia, putrid discharge and profuse hemorrhage, are all late manifestations, and indicate that the cancer has progressed to a hopeless stage. Our practice is to examine every patient by palpation of the cervix and inspection with a speculum and a good light; and if there is the slightest suggestion of malignancy to take a section from the cervix for microscopic examination, and at the same time thoroughly burn the cervix with the actual cautery. We believe that the cautery is the best prophylaxis against future trouble, provided the malignancy has not already supervened. Some authorities state that they have never seen a cancer in a cervix that has been thoroughly burned. The etiology of cervical cancer, although unknown, must be directly related to irritation either by infection or childbirth, because only about 3 per cent occur in nulliparous women[1]. I have had no experience with the Schiller test, but I do not think that at the present anything can supplant biopsy as a diagnostic procedure. Carcinoma of the body of the uterus, when it is primary in the fundus, presents the same train of signs and symptoms as cancer of the cervix, but cannot be seen.

1. White, J. William: Carcinoma of the Uteri Cervix, Am. J. Surg. 45:4 (July) 1939.

Gastro-Intestinal Tract

Cancers of the stomach are the most common of all malignancies. The death rate here is approximately 30,000 a year, and men are affected three times as often as women. Unfortunately, there are no classical early symptoms of carcinoma of the stomach. The textbook picture of an elderly male with vomiting, anemia malnutrition, asthenia, and episgastric mass, is not the picture of carcinoma of the stomach, but that of obstruction and widespread metastasis. Since carcinoma of the stomach may be relatively asymptomatic until the late stages, our only chance of early diagnosis is with x-ray and gastroscopic examination at the slightest disturbance of gastric function in patients approaching middle life. Someone has said: "Indigestion does not start after 40 in a man who has been able to eat anything he wanted until that time." Dr. Alvarez of the Mayo Clinic wrote a most interesting paper in 1931, entitled "How Early Do Physicians Diagnose Cancer in Themselves?"[2] He studied 41 cases, and it is both interesting and depressing to note how these men who were trying to locate troubles in other people failed to realize that they had anything serious, until in many cases it was too late to do anything. This shows how insidiously cancer of the stomach comes on. The ideal plan would be for every man past 40 to have his stomach x-rayed routinely once a year; however, this is not practicable, and the best that we can do is to be on the look-out for any signs referable to the digestive apparatus. I remember a case I saw last year —a white woman, aged 35, who had a severe anemia. She had no free hydrochloric acid in her stomach, and no symptoms referable to her digestive tract. She had lost no weight, and because of her age and lack of digestive disturbance we treated her for anemia, although we were never able to make out the true type of anemia. Sometime later we became suspicious that probably there was something else behind her trouble, regardless of the fact that she still had no digestive disturbance. We made an x-ray examination of her stomach and found that she had a carcinoma of this organ. She had a gastric resection and is quite well so far, but we are very much afraid of a recurrence on account of the extensive involvement of the stomach by the tumor mass. If we had recognized this at the onset of symptoms she might have had a better chance of cure.

2. Alvarez, Walter C.: How Early Do Physicians Diagnose Cancer of Stomach in Themselves? A Study of the Histories of 41 Cases, Collected Papers of Mayo Clinic, 23:44, 1931.

Colon and Rectum

With carcinoma of the colon and rectum the diagnosis is easier, on account of the location. Seventy-five per cent of the cancers of the lower bowel occur in the sigmoid and rectum[3], where at least 80 per cent are palpable either through the abdomen or rectum. Lesions here produce early symptoms, owing to the fact that the feces are solid and we get early signs of obstruction, bleeding and pain. It is more difficult to diagnose carcinoma of the right colon, because the feces are liquid in this situation, and bleeding and obstruction come on at a later period. The average age for this is the same as for carcinoma elsewhere, although it may occur in younger individuals. We saw a case last year in a man 31 years old who had plenty of symptoms and plenty of time, but his doctor had failed to put his finger in the rectum and was treating him for hemorrhoids. When we examined him the lesion was found to be inoperable.

Lahey[3] has analyzed 300 cases of carcinoma of the colon and rectum, and found that 80 per cent showed altered bowel function. Blood in the stools occurred in 86 per cent of cases of carcinoma of the rectum, and in only 9 per cent of cases involving the right colon. Abdominal cramps or pain occurred in 86 per cent of cases of cancer of the right colon and in only 7 per cent of cases of carcinoma of the rectum.

Patients with altered bowel function, blood in the stool, or abdominal pain, deserve the use of all the facilities at hand to make a correct diagnosis.

Conclusion

Malignant conditions are very, very common, and our only method of combatting them successfully is by their early recognition and treatment.

3. Lahey, Frank H.: Neoplasms of the Cecum and Ascending Colon, Am. J. Surg. 46:3 (October) 1939.

The Art and Science of Medicine. — The art of medicine and the science of medicine are not antagonistic but supplementary to each other. There is no more contradiction between the science of medicine and the art of medicine than between the science of aeronautics and the art of flying.

RECENT ADVANCES IN THE PREVENTION AND TREATMENT OF DISEASES OF THE CHEST

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In the limited time at my disposal only a brief mention of the important advances in the prevention and management of diseases of the chest will be possible. Progress has been made along several lines. An important factor in the prevention of diseases of the chest has been earlier diagnosis, which has brought many more sufferers to the physician for treatment before their disease became so far advanced as to make them a menace to others. Along the lines of curative treatment, we now have much more to offer a patient with a chest lesion than we did ten or fifteen years ago. The subject of diseases of the chest has become such a broad one that it constitutes a real specialty, both in internal medicine and in surgery.

Tuberculosis

Let us first take up the progress that has been made in the common chronic disease of the lungs and chest—tuberculosis.

Great good has been accomplished by education of the public and the medical profession as to the need of repeated examinations and x-ray examinations of contact cases and of the general population, especially those in and above the teen age. Laymen and physicians have become more chest conscious. At the same time they know that when a diagnosis has been made, the next step is to secure early treatment of the disease in a sanatorium.

Another forward step has been the establishment of a great many more beds in institutions for the care of tuberculous patients. Since we are better equipped to find out more about the patient and his disease, he has more encouragement and is more willing to cooperate with the physicians connected with his case.

Diagnosis: The routine use of the tuberculin test, the fluoroscope, the x-ray, and the bronchogram in certain cases, together with the use of the bronchoscope at times, has been of untold value in making an early diagnosis of tuberculosis.

Read before the Regional Meeting of the American College of Physicians of North Carolina, Chapel Hill, October 12, 1940.

Treatment: We will first take up medical treatment. This still consists chiefly in bed rest or modified rest. No drug has been discovered that has any selective effect on the progress of the disease, and the drugs that have been used have only some effect on the amelioration of the symptoms.

Surgery constitutes the other great line of treatment that has been evolved for the tuberculous individual. It has been of incalculable value and will certainly continue to be until, as we hope, some chemotherapeutic agent will be discovered. The various surgical procedures in order of importance and frequency of use are as follows:

1. Intrapleural pneumothorax.
2. Interruption of the phrenic nerve, either temporary or permanent. This operation can be used alone in cases not suitable for pneumothorax or cases in which the lesion is so slight as not to call for the use of more radical treatment. It can also be used in conjunction with pneumothorax or with some other type of surgical procedure, such as thoracoplasty.
3. Pneumolysis. This procedure consists in cutting adhesions that prevent an adequate collapse of the lung after pneumothorax. Following this operation the lung is usually better collapsed, and pre-existing cavities are frequently closed.
4. Pneumoperitoneum. By this procedure we inject varying quantities of air into the peritoneal cavity and thus cause elevation of the diaphragm and restriction of its motion. More rest to the diseased lung is thus produced. This procedure is used particularly in cases in which other surgical methods of collapse have failed, and in a small percentage of cases good results are obtained. In order to enhance the effects of this procedure, a previous interruption of the phrenic nerve on the most diseased side should be carried out, as the paralyzed side of the diaphragm will rise to a much higher level than the leaf of the diaphragm that is functioning.
5. The major surgical procedure, that of thoracoplasty, which can be either partial or complete.
6. Certain selective and less often used

procedures, such as extra-pleural pneumothorax, paraffin pack, and very occasionally lobectomy and pneumonectomy. These last two surgical procedures are very seldom applicable to tuberculous patients.

The bronchoscope, so useful as a diagnostic aid in other diseases of the chest, can also be used in the treatment of tuberculosis. Through this instrument local treatment of tracheobronchial ulcerations can be carried out with the cautery or with such preparations as silver nitrate. Constricted areas resulting from the healing of tuberculous ulcers and causing partial stenosis of the bronchi can be dilated through the bronchoscope. Frequently, non-tuberculous complicating diseases of the lungs can be discovered through the bronchoscope and differentiated from the tuberculous lesions which are present.

Non-Tuberculous Diseases of the Chest

Diagnosis: Great advance has also been made in the diagnosis and treatment, both palliative and curative, of the non-tuberculous pulmonary lesions. Early diagnosis is as important in non-tuberculous lesions as in tuberculous ones, and the same procedures are just as useful in the determination of the nature and extent of these lesions. In our search for early tuberculosis lesions we find in many instances non-tuberculous lesions of a nature and extent amenable to treatment both by medical and surgical means.

The time-honored methods of diagnosis, such as history taking, physical examination, use of the fluoroscope, x-ray, bronchograms, and various laboratory tests, especially the routine examination of the sputum, are still as important as ever in this class of diseases. I would like to emphasize the great importance of a routine study of the sputum in every patient with a history and symptoms of chest disease—provided, of course, that the patient has sputum. We see many patients who have been treated for various conditions over a long period of time without an exact diagnosis, because the physician overlooked the sputum examination.

The bronchoscope is of great value in non-tuberculous diseases of the chest. Any case in which the diagnosis remains obscure after all other methods have been used and found wanting, should certainly be examined by bronchoscope without delay. The diagnosis of many an obscure lesion is established only after the use of the bronchoscope and the removal of a section of tissue for pathological examination.

The punch or aspiration biopsy is a rather simple procedure, and material aspirated through the large bore needle may give very definite findings, especially in cases of pulmonary malignancy. At times an exploratory thoracotomy is indicated. If thoracotomy shows the lesions to be amenable to surgery, the operation can be carried out at that time, whether it means an incision of a suppurative process, excision of an offending mass, removal of a lobe or lobes of the lung, or even pneumonectomy.

Treatment: The medical treatment of most chronic non-tuberculous pulmonary lesions, such as bronchiectasis, chronic lung abscess, and malignancy, is usually disappointing. Recently great advances have been made in the chemotherapeutic treatment of many of the acute non-tuberculous lesions. The chemotherapeutic agents, such as sulfanilamide, sulfapyridine, preparations of arsenic, the iodides, and thymol, constitute almost a new era in the treatment of non-tuberculous pulmonary lesions. I feel that as time goes on other agents will be discovered, not only for the treatment of these acute lesions, but also for some of the chronic ones.

We now come to the surgical treatment of non-tuberculous lesions. Many of these, especially the sub-acute and chronic ones, can now be successfully treated by various surgical procedures developed and perfected in the last few years. The use of the bronchoscope has constituted a great advance in their treatment. Frequently by the dilatation of an obstructed bronchus or the removal of a foreign body or a tumor mass, better drainage is instituted and there is a re-inflation of the atelectatic portion of the lung distal to the obstruction. This is often followed by clearing up of the process, especially if it is a rather acute or a subacute one. The operation of thoracotomy has been of great value in the treatment of suppurative processes involving the lungs or pleura, or both, and can often be used as a supplement to the drug treatment of such cases. Lobectomy and pneumonectomy have been so perfected that they are now relatively safe. Many cases of chronic lung abscess, bronchiectasis, and lung tumors, benign and

occasionally malignant ones, can now be treated by these surgical procedures.

Anesthesia

One of the important factors in decreasing the mortality incident to these various surgical procedures has been the discovery of new and better anesthetics. Cyclopropane is most satisfactory, since it can be given with a high oxygen content. We have also basal anesthetics, such as avertin, which can be used in conjunction with the administration of the various gases.

The safety of anesthesia and the low percentage of deaths from its use are also due to the fact that we now have trained anesthetists. I feel that an anesthetist should be a physician who has thoroughly perfected himself in the science and art of the administration of anesthetics. The surgeon who can have on his team a man who is not only a specialist in the administration of anesthetics, but is also a good doctor, is relieved of a great deal of worry, and the danger to the patient is considerably lessened. A good anesthetist is necessary to a satisfactory operating team. Surgeons are now demanding well trained and experienced anesthetists.

Conclusions

Although great advances have been made in this field, much more needs to be done. While many of these diseases are amenable to treatment, a great many are still beyond the pale of any effective therapy. Again, due to carelessness of physician or patient, or both, many diseases are not diagnosed until they have become too far advanced to be suitable for any treatment. Many of the surgical procedures are very serious, and some are mutilating. While the mortality has been greatly reduced, it is still uncomfortably high.

We are still seeing a great many advanced cases of tuberculosis and of non-tuberculous diseases of the chest, and we still do not have enough beds. We need to educate the public more as to the value of early diagnosis and proper treatment over a long enough period of time.

"Stuck" Syringes.—A simple and effective method of separating a "stuck" syringe is to place it in a container of concentrated nitric acid completely covering the syringe. Leave it immersed for a variable length of time, a week or two usually being sufficient. — W. J. Nungester, in Science, 92:516 (November 29) 1940.

SURGICAL TREATMENT OF BENIGN RECTAL STRICTURE

(Lymphogranuloma Venereum)

GEORGE T. WOOD, M. D.

HIGH POINT

Lymphogranuloma venereum has been known to the medical profession for some time, and during the past decade many articles have appeared in the literature describing its relationship to the benign rectal strictures. Prior to the introduction of the Frei intracutaneous test in 1925, non-malignant and non-traumatic strictures of the rectum were thought to be due to gonorrhea, tuberculosis or syphilis. The case here reported is one of benign rectal stricture of several years' duration, with a positive Frei test. The case was complicated by a luetic infection.

Incidence

Formerly this condition was thought to be a tropical or semi-tropical disease, but in recent years cases have been reported from all parts of the world. Males are probably more often infected than females, but this difference may be more apparent than real, owing to the superficial lymph drainage of the initial lesion in the male.

Pathology

Lymphogranuloma venereum is caused by an ultramicroscopical virus which is transmitted during coitus. After an incubation period of one week a transient, painless ulceration appears on the genitals. Several weeks later the lymph nodes draining the initial lesion become edematous and the lymphoid tissues undergo hyperplasia, with fibrosis and abscess formation. The lymphatic involvement varies with the sex of the patient and the location of the lesion. The following excerpts from an article by Lee and Staley[1] describe the anatomy of these parts.

In the male, "The glans penis and the prepuce drain primarily to the inguinal nodes. These have connections with the iliac nodes above. An occasional lymph vessel leads directly through the femoral canal and abdominal muscles from the glans penis and prepuce to the iliac and hypogastric lymph nodes. A number of anastomoses are present between the lymph vessels of the glans penis and the prepuce and the skin of the

1. Lee and Staley: Inflammatory Strictures of the Rectum and Their Relationship to Lymphogranuloma Inguinale. Ann. Surg. 100:486-495, 1936.

scrotum, and there is a rare direct connection with the anal canal. The skin of the scrotum drains chiefly to the inguinal nodes. The abundant connections of the skin of the scrotum with the anal region are of great importance, as this connects indirectly the penis and the cutaneous lymphatic network of the anus."

In the female, "The clitoris and the vulva drain principally to the inguinal nodes. As in the male, indirect trunks lead to the iliac and hypogastric nodes. The lymphatics of the posterior portion of the vulva have extensive connections with the cutaneous lymphatic network of the anus. In both sexes many communications exist between this anal network of the lymphatic and Gerota's nodes at the ano-rectal junction. The cutaneous and lymphatic network is approximately two centimeters within the anal orifice and Gerota's nodes are four centimeters higher. The connections between the lymphatic vessels and the posterior vaginal wall and the anus are quite free. The lower third of the vagina drains chiefly to the iliac and hypogastric nodes, and the uterus to the preaortic, utero-vaginal, superior hemorrhoidal and sacral lymph nodes."

This description explains the high incidence of inguinal adenitis and the infrequency of rectal complications in the male and the relative frequency of rectal stricture in the female, with a low incidence of inguinal bubo. One of the early complications in the female is a proctitis following the lymphatic involvement. Recurrent perirectal abscess, fistulas and hemorrhoids are frequent complications.

Case Report

The case here reported is of a married woman 32 years of age, the mother of five children. Her chief complaint was severe constipation and purulent rectal discharge.

According to the history she gave, the onset of her present illness was in April, 1927, when she developed a perirectal abscess during pregnancy. This was incised and drained, and it healed without the formation of a fistula. One year later she developed another abscess, which healed after drainage. The same thing happened in 1930, when the abscess opened spontaneously. From that time until the present she had had non-bloody discharge from the rectum, associated with increasing constipation. She used saline laxatives constantly, and even then a great deal of straining was necessary for defecation. From 1927 until 1936 she could not do much work; she lost weight and strength, and never felt well. She consulted me first in October, 1936, at which time she complained of pain near the anus and severe constipation. The pain was due to a perirectal abscess, the first she had had since 1930. This was opened and drained.

There is nothing significant in the past history except the syphilitic infection. Her husband had a primary lesion in 1928 and received some treatment. The only clinical indication that she had obtained the infection was a macular rash in 1933. Active treatment was started in 1936 by Dr. L. W. Holladay and continued until 1939. The blood and spinal fluid Wassermann tests were negative.

The patient was a rather thin, poorly nourished woman of 30 years. The physical findings were entirely negative except for a perirectal abscess, and, upon digital examination of the rectum, a very tight annular stricture at the anorectal juncture, the lumen of which did not exceed 1 to 1½ cm. The mucosa over the stricture was ulcerated.

Treatment

The various forms of medical treatment for rectal strictures have been generally unsatisfactory, including the use of antimony and potassium tartrate, fuadin, foreign protein, Frei antigen intravenously, and a host of other preparations. Operative procedures have varied from simple dilatation of the stricture to the abdomino-perineal resections. The treatment of this condition has recently been modified by Warthen[2]. His technique was used in this case.

Most strictures of this type are located 3 to 8 cm. from the anus, and it is well to remember that the peritoneum of the cul-de-sac is located 5.5 cm. above the anus in women. If dilatation is attempted in these annular fibrous strictures, a tear may take place which, if anterior, will penetrate the peritoneum and produce a peritonitis. Several deaths following dilatation have been reported, even when the mucosa of the rectum was not torn. These were perhaps caused by infection which was massaged through the bowel wall, or to rupture of an abscess in the free peritoneal cavity. It was to obviate these dangers that Warthen devised an operation which would permit safe

2. Warthen, Harry, in Virginia M. Monthly, 66:20 (January) 1939.

postoperative dilatation of the stricture without risk of peritonitis. To attain this end a colostomy was combined with the chemical and mechanical obliteration of the cul-de-sac. The surgical technique is as follows: Spinal anesthesia is injected, and with the patient in an extreme Trendelenberg position, a left paramedian incision is made. Any pathologic tissue of the pelvic organs is removed. The peritoneum lining of the cul-de-sac is painted with one-half strength tincture of iodine, applied only to the area which will be covered by sutures. The cul-de-sac is then obliterated from below, by purse-string sutures which include the lateral rectal wall and the parietal peritoneum in the pouch of Douglas. These sutures are continued upward until the sigmoid is attached to the posterior peritoneum of the broad ligaments. Thus the cul-de-sac is entirely obliterated by sutures. The chemical irritation caused by the iodine will encourage the adherence of these parts. The next step is to make a temporary double-barrelled colostomy through a left McBurney incision. The loop of the sigmoid is supported on a glass rod, and the bowel is opened later (after forty-eight hours or more) with a cautery.

Postoperative Care

After operation hot irrigations are given through the lower loop, and in a short time the rectal ulceration subsides, and the stricture begins to soften. In our case finger dilatations were begun in the fifth week, and have been carried out three times weekly. It was surprising how little discomfort dilatations caused the patient. There has been a marked improvement in her general health, and she is able to control her colostomy opening with the proper diet. I do not know how long it will take to complete the dilatations of the stricture, or when the colostomy can be safely closed. Warthen had not closed the colostomy in any of his cases at the end of eighteen months. With the patient in the lithotomy position, the stricture can be more easily dilated if the index finger of the left hand placed on the posterior vaginal wall is used to pull the stricture over the finger inserted in the rectum. It was rather surprising to see how quickly the tissues around the stricture softened after diversion of the fecal current.

Summary

A safe and easy method of dealing with non-malignant rectal strictures has been described. After a colostomy is performed and the fecal current diverted, the rectal infection subsides, and the obliteration of the cul-de-sac permits early and frequent dilatations of the stricture, without the danger of fatal peritonitis. Non-malignant and non-traumatic rectal strictures are the result of lymphogranuloma venereum, and are not due to syphilis or gonorrhea. This case was given antileutic treatment for two years without improvement in the stricture.

There is always a danger of stricture following lymphogranuloma infection of the rectum. When the proctitis is severe, and the Frei test is positive, it is our opinion that a colostomy should be made, with the chemical and mechanical obliteration of the cul-de-sac.

A Frei intracutaneous test should be made in all cases of rectal stricture.

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North Carolina Medical Journal

Owned and Published by
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under the direction of its Editorial Board.

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Address manuscripts and communications to the
NORTH CAROLINA MEDICAL JOURNAL,
428 Stratford Road, Winston-Salem.

MAY, 1941

DR. VAN ETTEN

In a simple but impressive ceremony the corner stone of the Bowman Gray School of Medicine of Wake Forest College was laid on April 16. At 7 p. m. the dinner meeting of the Eighth District Medical Society was held on the roof of the Robert E. Lee Hotel. The high lights of both occasions were the addresses of Dr. Nathan B. van Etten of New York, president of the American Medical Association. The first of these addresses is published in this issue of the NORTH CAROLINA MEDICAL JOURNAL; the other will follow soon. They will repay careful reading and rereading, for they are not only full of philosophical common sense, but are models of literary expression.

Those who did not meet Dr. Van Etten and hear him speak in Winston-Salem can form some idea of the man from these addresses. An admirer of a noted preacher once gave as the reason for the effectiveness of his sermons that "there is a whole lot of man behind what he says." Friends of Dr. Van Etten know that this can be just as truly applied to him. His delightful personality made for him a multitude of new friends in North Carolina, who hope that his first visit to the state will be followed by many others.

We can not all, of course, follow the neighborly custom of returning his visit; but doubtless he would appreciate it if as many as possible would do so by attending the Cleveland meeting of the American Medical Association, June 2 to 6. All who go will be well repaid; for under his leadership we may be assured of a great meeting.

* * * *

A GENERAL PRACTITIONERS' SECTION FOR CONNECTICUT

It is possible to be so far in advance of the procession as to be forgotten by one's followers. In the *Connecticut State Medical Journal* for April, a letter from Dr. Herrman S. Cutler outlines plans for the organization of a general practitioners' section at the annual meeting of the Connecticut State Medical Society in May. Dr. Cutler states that the movement was initiated by "the general practitioners of New Haven, following the example set by similar groups in Westchester County, New York, and in Wayne County, Michigan. . . . This was undertaken with the approval of the State Medical Society and with the cooperation of the Secretary of the Society."

When the *New York State Journal of Medicine* for November 15, 1940, reported the formation of a general practitioners' section for Westchester County, this journal offered a comment which it seems pertinent to repeat in part now:

"The NORTH CAROLINA MEDICAL JOURNAL would like to recall, in order to keep history straight, that a general practitioners' section of the Medical Society of the State of North Carolina was organized in 1937, and that it has had the largest attendance of any section of the society. To go still further back, Dr. J. M. Northington, editor of *Southern Medicine and Surgery*, established a Department of General Practice in that journal in July, 1931."

The NORTH CAROLINA MEDICAL JOURNAL wishes the best of success for the general practitioners of Connecticut, and predicts that the new organization will rapidly become the most popular section of the society.

MEDICINE—TRADE OR PROFESSION?

After two months, the suit brought by the United States Government against the American Medical Association for "operating in restraint of trade" ended in a weird verdict. The American Medical Association and the District of Columbia Medical Society were found guilty, but all the individual defendants were found not guilty. It is hard to follow the reasoning—if any—of the jury.

Since the American Medical Association has been found guilty of operating in restraint of trade, medicine—one of the three original learned professions—is now legally a trade. The labor unions have been exempt from the anti-trust laws. The *Chicago Tribune* for April 7 points out that "The anti-trust conviction may impress upon the members of the A. M. A. that when they organized they took out the wrong kind of charter. They should have applied to William Green or John L. Lewis. So equipped, they would not have been reduced to refusing to practice in the same hospitals with a physician who signed up with Group Health. Dr. Morris Fishbein could just have gone around some evening and broken the wrong guy's fingers with a blackjack, an operation that does a surgeon no more good than it does a musician, and Mr. Justice Frankfurter would have told Thurman Arnold not to get himself all wrought up over a passing moment of animal exuberance.

"A good broad A.F.L. or C.I.O. charter would solve a lot of the medical profession's economic problems. Its members would not have to worry about overproduction of doctors. They could just close their membership rolls and have some of their members, sitting on the state and local examining boards, prosecute the newcomers for practicing without a license.

"Draft boards wouldn't be asking physicians to give their services free for examination of the draftees. All the chest thumping in charity wards would be done at the union scale and any nonunion medico who tried to cut in on the business would have to pay a $1,000 initiation fee. Ladies expecting offspring would have to be careful that the labor pains did not start after 4 p.m. on a Friday; otherwise Papa would have to pay double time for a week-end delivery."

Such an idea, of course, is too ridiculous to be entertained for a minute by members of the American Medical Association; but it does cause one to think seriously about the depths into which democracy can descend.

* * * *

SUGGESTIONS TO MEDICAL WRITERS

A member of our editorial board, who is himself a gifted and experienced writer, has offered the following suggestions to medical writers:

Far be it from us, by giving unsought advice or gratuitous criticism, to affront those who contribute to the literature of medicine. It is a fact, however, that medical writers do have faults. They are chiefly faults of commission, not of omission. With a view to calling attention to some glaring blemishes, the following suggestions are offered in their terse and simple form for what they may be worth:

1. *Begin where your subject begins and stop where it leaves off.* In other words cut out the introductions and the perorations. The world is suffering constantly from the pain caused by people who will not come to the point. Avoid the statistical-bureau method on the one hand and shun the exhaustive and exhausting encyclopedic style on the other. While running from the choppy sentences of Carlyle, see that you plunge not headlong into Macaulay's rhetorical periods.

2. *Do not go back every time to Hippocrates and Galen.* We have troubles of our own. A paper on a special theme is not supposed to be a treatise on medical history, though that in itself is a most fascinating subject. When this is attempted, even in part, the article is apt to be thrown away before being finished and condemned as "re-hash". If you look up the matter, you will find that somebody has already arranged and classified everything and rendered due credit to Aesculapius. Find out all you can about your subject, but include only what pertains to the topic in hand. Never report a case as rare until you make certain that it *is* rare.

3. *Remember that the harder it is for you to write, the easier it is for the reader to read.* Turning it off the assembly line or scribbling it down with facile pen sounds well, but teasing it out with a sharp dissector is necessary for its perfect digestion. Prune, polish and pickle before you publish.

PARATHYROID ADENOMA

It is true that the great majority of ailments which bring patients to physicians are of the so-called "common garden variety", and herein lurks a danger; for the preponderance of the usual may easily blunt the practitioner's keenness for the recognition and detection of the rare and unusual. Such an uncommon condition is adenoma of a parathyroid gland, producing the intensely interesting picture of hyperparathyroidism. This syndrome should be familiar to all; for the most brilliant results follow surgical therapy, and great disability, and even death, is the price which the patient pays for an error in diagnosis. It may be remarked in passing that this syndrome illustrates exactly the only type of "preventive medicine" that the practitioner really can practice; by his efforts he can prevent the occurrence of disastrous consequences.

The absorption and proper handling of calcium is a very vital metabolic process. Vitamin D, or calciferol, is generated in the skin by the action of actinic rays upon the lipoid, ergosterol, and this vitamin governs the intake of calcium from the intestines. Milk is the most valuable source of calcium. After entering the blood, calcium is deposited largely as calcium phosphate in the bones and teeth, from which great storehouses it is supplied to the body in the needed amounts through the action of the hormone produced by the four parathyroid glands, called parathormone. The liberation of calcium from its stored form as calcium phosphate is accomplished by the action of the enzyme phosphatase. A parathyroid adenoma produces an excess of parathormone; too much calcium is drained from the bones; and decalcification with the production of multiple bone cysts may result. The patient in the beginning complains of lassitude, great weakness, and pain in the bones. Unless the adenoma is removed, the bones may fracture upon slight effort, and severe damage to the organs, especially the heart, blood vessels and kidneys, is produced by the deposition of "metastatic" calcium.

If the condition is suspected diagnosis is not very difficult. The calcium in the blood is found elevated above the normal range of 9 to 11 mg. per 100 cc.; the bones may show decalcification; and, in probably half the cases, a characteristic deposition of calcium in the pyramids of the kidney is shown by x-ray study[1]. Phosphatase is greatly increased in the blood.

Such fascinating problems as hyperparathyroidism furnish a welcome relief from the common run of disease, providing a diagnostic thrill for the physician, and, much more important, bringing relief to the patient from a disabling and dangerous disease.

1. Hyperparathyroidism Due to Parathyroid Adenoma, With Death from Parathormone Intoxication, Am. J. M. Sc. 197:85, 1939.

* * * *

"DOCTORS SCORE AGAIN"

An editorial in the *Winston-Salem Journal*, under the above caption, comments on an article by Paul de Kruif in the *Reader's Digest*, which tells of the work done by Dr. Tom Spies on pellagra and other deficiency diseases. The concluding paragraphs of the editorial should be of interest to those who would substitute European systems of political medicine for the American system:

"Unbelievable as the work of Dr. Spies and his colleagues may appear, it is there for all to see. Countless thousands are alive today, and countless millions will live longer in the future, thanks to the men of medical science. It is a great tragedy that their work throughout the world is periodically halted by social strife, wars and bitter political differences.

"The outstanding achievements of American medicine have been made possible under a governmental philosophy which allows full play to the talents of each individual. In return for these privileges inherent in what we like to call the free enterprise system, American medicine gives prodigiously to all the people, regardless of class, color or creed. We should consider well and long before making any fundamental change either in this system or in the institution of private medicine."

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

DUKE HOSPITAL

DR. ELBERT L. PERSONS (Reading the Clinical Summary): This 40 year old colored housewife was first seen in the Medical Outpatient Dispensary, complaining of shortness of breath of six months' duration.

The *family history* was entirely non-contributory. Her first husband died at 46, after a marriage of nineteen years, of "heart disease". Her first pregnancy, when she was 18, was carried to term, but the child died at 2 months of pneumonia. Since that time she had carried two pregnancies to the seventh month, with spontaneous delivery of stillborn infants, and had had three miscarriages at three months. Her second marriage, four years ago, was to a healthy man now 49, and her last miscarriage was one and one-half years ago. She did not know if either husband ever had a blood test or had taken antiluetic therapy.

Past History: Her general health had been good. Aside from the exanthemas she reported only one illness, at the age of 20, when, after being out all night in the rain, she developed an explosive outbreak of "inflammatory rheumatism" during which all the joints were painful at one time, although only the ankles swelled. Recovery was rapid, leaving no disability.

The review of systems showed frequent headaches, no visual symptoms (except that she had needed glasses for many years), and no cardiac or respiratory symptoms. For the past four or five years she had had attacks of "indigestion" for which soda was taken after meals. She had taken laxatives habitually. There had been no jaundice or colic and no nocturnal symptoms.

There were no urinary symptoms and the menses had been normal and regular.

Until five years ago she had been a school teacher, and she was "always rather nervous". Her weight had been about 180 pounds.

Present Illness: Although actual disability had been present for approximately six months, relevant symptoms seemed to have started four or five years ago, when, for about two years, she had menorrhagia. About two years ago she was examined by a physician and told that she had an abdominal tumor. No treatment was advised, and the menses had been regular since that time, with a thirty day interval, four or five days of flow, and no intermenstrual bleeding, although some pain had been present.

For about two years she had been bothered by shortness of breath on exertion, and easy fatigue and palpitation. Her weight decreased to 146 pounds, and for the past year the ankles swelled at night, in association with enlarged veins. She stated that there had been no increase in symptoms during the two or three year period before February, 1940, when she had "flu" with cough, swollen lips and "fever blisters", and generalized skin rash. Since then she had had increasing shortness of breath on exertion, weakness and fatigability, and palpitation. She had taken a proprietary powder containing bromide frequently for "constant headaches", and had noted a pustular rash on the face, shoulders and back.

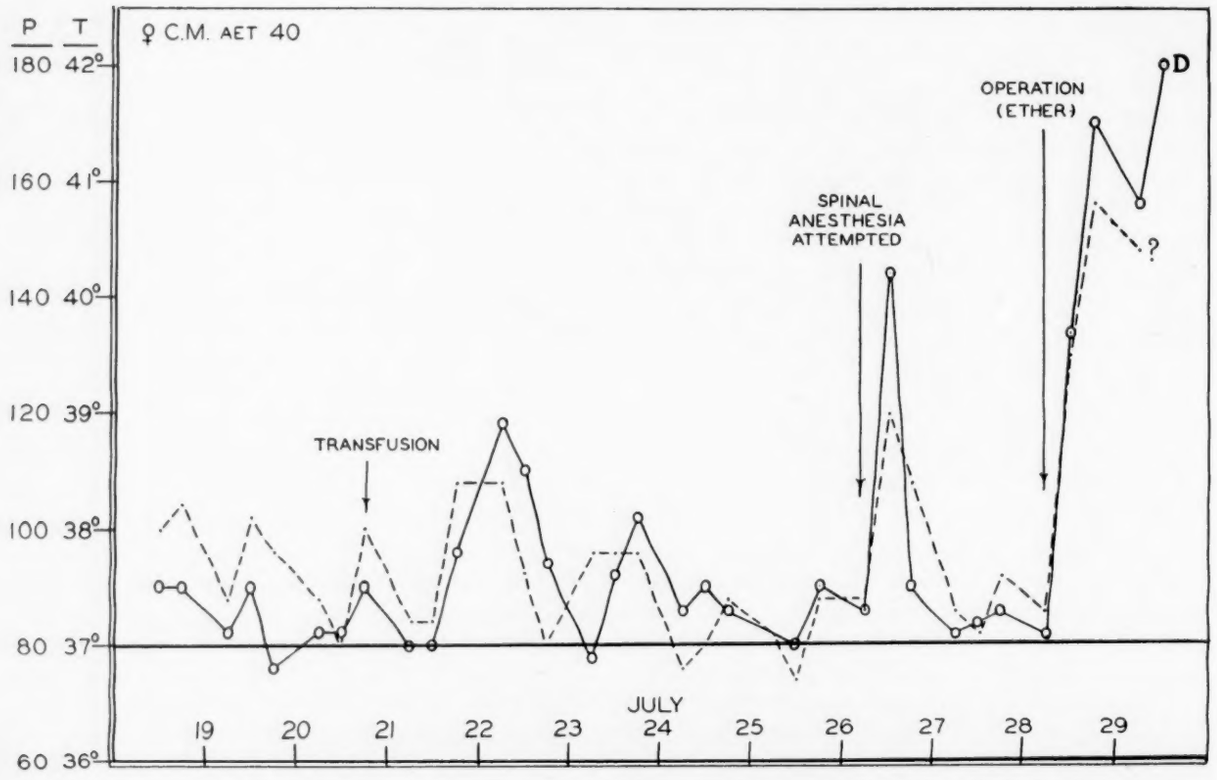
No blood tests of any kind had been made, and there had been no recent treatment.

Physical Examination: The temperature was 36.8 C.; pulse, 80; respirations, 18. Her development and nutrition appeared normal, with nothing to suggest recent weight loss. The skin was normal except for an acneform eruption over the face, upper chest, and shoulders, with some scarring and pigmentation. The head, eyes, ears, nose and throat were normal except for poor dental hygiene. The neck was supple, with no glandular enlargement and no venous distention with the patient lying flat upon the table. The breasts were normal, expansion of the thorax was good, and the lungs were clear.

The heart was enlarged to the left by percussion. The sounds were of good quality and normal rhythm. There was a systolic murmur loudest at the second left interspace. The blood pressure was 150 systolic, 85 diastolic.

The abdomen showed no enlargement of the liver and spleen. The left lower quadrant was filled by a mass extending two-thirds of the way to the umbilicus, which was movable without pain. On pelvic examination this was thought to be an irregular uterine fibroid. The extremities were normal and the neurological examination was negative.

The hemoglobin was 50 per cent; the red cell count 3,730,000. The Wassermann and



Kahn tests were negative; the urine was normal.

The patient was transferred to the Gynecologic Dispensary and was then admitted to the hospital on that service, where the physical findings and the hypochromic anemia were confirmed. Sedimentation rate was 6 mm. per hour.

As indicated on the temperature chart, the patient was given a transfusion on the third hospital day, which raised the hemoglobin value to 67 per cent. This was followed by a febrile rise, and a medical consultant was called. Seeing her on July 24, he found no change in the cardiac findings; the blood pressure was 140 systolic, 70 diastolic; and there was no evidence of an acute infection. A catheterized urine specimen was normal.

A dermatologic consultant reported a seborrheic type of skin, but thought the appearance of the skin lesions suggested a combination of bromidism and self-inflicted trauma.

The seventh and eighth hospital days were uneventful, and on July 27 the patient was taken to the operating room, and an attempt was made to produce spinal anesthesia. This was unsuccessful and was followed by a sharp rise in temperature to 40.2 C. and in the pulse rate to 120. The tenth hospital day was again uneventful, and on July 29 supravaginal hysteromyomectomy, bilateral salpingo-oophorectomy, and appendectomy were performed under ether anesthesia. The entire procedure was well tolerated, the blood pressure remaining around 140 systolic, 80 diastolic, the pulse ranging from 110 to 130.

Within two hours after the operation the patient's temperature was 39.6 C. and there was marked restlessness and discomfort. Her temperature continued to rise. Fourteen hours after the operation it was 41 C., and auricular fibrillation with a radial pulse rate of 160 was noted. Digitalis and stimulants were of no value, and the patient expired twenty-one hours after operation, after a short period of restless coma.

Discussion

The preoperative gynecologic findings and the type of operation described allow us to discard any idea that abdominal exploration revealed anything more than a relatively innocuous type of pelvic tumor or chronic inflammatory lesion, probably the former. The patient's death must have been due to some extrapelvic disease which had not been recognized, or to a postoperative complication.

The record is distinctly against a postoperative complication associated with the anesthesia, which was apparently uneventful, and there are no indications of hemor-

rhage. Postoperative infection must be thought of, but we do not expect such extreme febrile reactions so soon after operation in any of the common operative complications.

The clinical picture described seems compatible with that of fatal "heat stroke", and it may be well to recall that the latter weeks of July were extremely hot in Durham. One of the effects of ether anesthesia, moreover, is temporary disorganization of the heat-regulating mechanisms. Such severe thermal reactions may occur also in brain injuries and after operations on the brain, but there are no data to support such an explanation here.

It is worthy of careful note that auricular fibrillation was reported seven hours before death. While this may occur spontaneously in people who are not seriously ill, it is uncommon as a terminal event in febrile illnesses where the heart has been previously normal. We do not expect it, even as an agonal phenomenon, in pneumonia, meningitis, peritonitis or even uremia, and its appearance suggests some preexisting load on the heart, especially that due to hyperthyroidism. It is probably safest to regard auricular fibrillation which is not paroxysmal in type and which is not associated with signs of structural disease of the heart as due to hyperthyroidism until the condition can be definitely eliminated.

With this in mind, a review of the clinical course makes it seem highly probable that the patient had a masked form of hyperthyroidism and that the events following operative intervention represent a "thyroid crisis" which was fatal. Since examination of the neck revealed no nodules, we are probably dealing with a diffuse hyperplasia of the thyroid.

Clinical Diagnosis

Toxic diffuse goiter with acute postoperative thyrotoxicosis ("thyroid crisis") following laparotomy.

Pathologic Report

DR. SPRUNT: The diagnosis on the material removed at operation was fibromyoma of the uterus; adenomyosis; minimal chronic follicular salpingitis; endometrial polyp. As stated by Dr. Persons these could have contributed little, if anything, to the patient's death.

At autopsy a diffusely enlarged thyroid, weighing 63 Gm., was found. We think of the normal weight of the thyroid as about 30 Gm. The thymus weighed 50 Gm., and was therefore greatly enlarged for the age of 40. The thyroid on section had a characteristic diffuse beefy appearance. The other organs grossly were essentially normal.

Microscopic sections of the thyroid show the picture of a typical exophthalmic goiter. The thymus is also hyperplastic. In the liver there is considerable fat and some slight necrosis of the hepatic cells.

Anatomical Diagnosis

Exophthalmic goiter; diffuse necrosis of the liver with fatty change; persistent enlarged thymus; edema of the lungs; pleural adhesions; fresh suprapubic surgical incision; fibroids of the uterus.

CLINICO-PATHOLOGICAL CONFERENCE

CITY MEMORIAL HOSPITAL

WINSTON-SALEM

Presentation of Case

Mrs. M. L. M., a white woman 46 years of age, entered the hospital for a cholecystectomy, complaining of pain in the abdomen.

The patient's illness goes back to about fifteen years ago, when she first began to have epigastric pain. This pain was occasionally associated with nausea and vomiting. The patient stated that the pain came on thirty minutes after eating and could be relieved by soda, food or various types of medicine, but would recur when the effects of the food or medicine had worn off. Nausea and vomiting occurred from time to time and gradually became more severe. The pain frequently awakened her in the middle of the night. About two years ago the attacks of pain became more severe and the nausea more frequent. She was told that her appendix might be causing her trouble, and the appendix was removed without relief at another hospital. The pain began to extend beneath the right costal margin, and later extended frequently beneath the right shoulder blade. The vomitus was green and bitter. The patient had never noticed any icterus or itching of the skin. She had not been bothered with gas and had not omitted fried or greasy foods from her diet. She had never noticed the character of her stools.

Six weeks before admission she had a cholecystographic examination. The gallbladder was not visualized, and no stones were seen. During the two weeks previous to admission the pain became so severe that she decided to have an operation.

Thirty-five years ago the patient had typhoid fever. She constantly took medicine for constipation, and occasionally had frequency and burning associated with the attacks of pain in the epigastrium. Otherwise her past history was negative.

The patient was a well developed, well nourished white adult female lying quietly in bed and not appearing acutely ill. The heart appeared normal in size. The rhythm was regular and no murmurs were present. The abdomen was slightly obese, and an old midline scar was present. There was a good deal of tenderness and rigidity in the epigastrium and right upper quadrant, and slight tenderness in the left lower quadrant on deep palpation.

A catheterized specimen of urine was straw-colored, slightly cloudy and acid. The specific gravity was 1.015. Albumin and sugar were not present. There were 2 to 4 white blood cells, 1 or 2 red cells, a few epithelial cells, and an occasional hyalin cast in the sediment. The red count was 5,200,000, the hemoglobin, 14½ Gm.; the white count was 7,800, with 1 per cent eosinophils, 10 per cent stabs, 56 per cent segmented cells, 28 per cent lymphocytes and 5 per cent monocytes. The nonprotein nitrogen was 48.2 mg. per 100 cc. On admission the temperature was 100.4 F. and the pulse was 98.

The next day the patient rested comfortably. At 3 o'clock on the morning of the third hospital day the patient was awakened by a very severe pain in the epigastrium which she insisted was the most severe pain that she had ever had. She thought she was going to die. She was nauseated, and vomited 150 cc. of brownish fluid. She complained that her back ached. Her pulse was weak and thready and was thought to be about 90. She was given morphine, nitroglycerin and coramine, and passed the remainder of the night in a very uncomfortable state. (This was thought to a "heart attack".) At 6:45 a.m. her pulse was 110. Her temperature at 8 a.m. was normal, but her pulse had gone up to 116. A blood count at this time showed 13,750 white cells, with 1 per cent juveniles, 10 per cent stabs, 60 per cent segmented cells, 28 per cent lymphocytes and 1 per cent monocytes. The patient continued to complain of severe pain in the epigastrium. At noon her blood pressure was 110 systolic and 74 diastolic. Her temperature was 99.4 F., her pulse 108, and her respirations 20. She continued to be in pain, and at 8 p.m. her temperature was 100.6 F., her pulse 100, and her respirations 24. She was given an enema, but was unable to expel it. It was siphoned back almost clear, with small strings of fecal matter. The patient passed a fairly quiet night with 3 grains of nembutal, and felt considerably better in the morning. She was operated upon at 8 a.m. on the fourth hospital day.

Discussion

DR. EDGAR BENBOW: This patient's epigastric pain was occasionally associated with nausea and vomiting. The first two things that come to mind are gallbladder disease and peptic ulcer. Since this patient had had her appendix out at a previous time, we can rule out trouble with the appendix. The patient stated that when she had pain and took food, the pain was relieved until the food "gave out." Apparently the pylorus closed and stopped the gastric juice from entering into the duodenum. When the pylorus opened again the food came into the duodenum and the pain recurred. These facts are in favor of a duodenal ulcer rather than gallbladder disease. Another point is that the pain radiated beneath the right shoulder. This could be due either to gallbladder disease or to a peptic ulcer. The fact that the vomitus was green and bitter simply means that there was a reflux of duodenal contents into the stomach, and not necessarily that the vomiting was due to gallbladder disease. She never complained of any icterus or itching of the skin, and had never been jaundiced. If her illness had been due to gallbladder disease she probably would have been jaundiced at some time and had itching, although the absence of these symptoms is not conclusive. The fact that she had never been bothered with gas and did not have to omit fried foods and greasy foods from her diet is not in favor of gallbladder disease. The failure to visualize the gallbladder by x-ray might be of significance, if the dye was given intravenously. If the dye was given by mouth this finding is not significant, unless there was enough in the colon to show that she had retained it.

DR. A. DET. VALK: She did retain the dye. I might say that this was the second gallbladder picture which she had had made, with the same findings in both.

DR. BENBOW: Then that would point strongly toward some gallbladder pathology, although the evidence is not conclusive. The next thing of importance is the sudden attack of severe epigastric pain which she had in the hospital. This attack suggests several possible conditions. Acute appendicitis, of course, is ruled out. The second possibility is acute mechanical obstruction. In mechanical obstruction there is peristalsis and paroxysmal pain. There is not very much abdominal rigidity between the paroxysms. Usually there is no elevation of the leukocyte count, especially at first. This patient's count went up from 7800 to 13,750, and the percentage of polymorphonuclears rose from 67 to 71 per cent. In obstruction by acute strangulation distention is marked, vomiting is persistent, and x-ray examination shows gas in the small intestine above the obstruction.

Another condition to be considered is acute cholecystitis. With acute cholecystitis vomiting is usually more or less persistent, and the temperature is usually high. This patient's temperature was not high. Jaundice may or may not be present in acute cholecystitis. The pain, and especially the tenderness, is always over the gallbladder region. This woman's pain remained in the epigastrium—a fact which favors ulcer more than gallbladder disease. Cholelithiasis must also be considered. With cholelithiasis the pain is agonizing, but is paroxysmal, and the pain and tenderness are greatest over the gallbladder. This pain was constant and was in the epigastrium.

Acute toxic gastritis or corrosive poisoning can be ruled out because the patient was in the hospital, and because none of the signs were present.

Pleurisy or pneumonia is always accompanied by a high white cell count and high fever, which this woman did not have. Vomiting is not common with pneumonia or pleurisy. The face is usually flushed and the alae nasi are working. The respirations are often grunting in character.

Another possibility to be considered is coronary occlusion. In a coronary occlusion there may be severe epigastric pain, but there is no tenderness. We may very well rule this out.

In gastric crises of tabes dorsalis there is epigastric pain which radiates over the abdomen. There is an absence of the knee jerks, a positive Romberg sign, Argyll Robertson pupils, a history of syphilis and of previous attacks, and a positive spinal fluid. The absence of these findings in this patient would rule that out. A mesenteric thrombus and acute pancreatitis are to be considered, but there were not enough signs and symptoms of shock for this.

The two remaining possibilities are gallbladder disease and a perforating ulcer. I believe that this patient had a perforating ulcer, which, instead of having perforated as most perforated ulcers do, with a lot of fluid being spilled into the peritoneal cavity, had just a slow leak which was partially sealed off. If she had had an x-ray film made in the upright position it might have shown air under the diaphragm if there was a perforated ulcer. Did she have an upright x-ray picture?

DR. VALK: No, she did not.

DR. BENBOW: My diagnosis of this case would be a slow leaking gastric or duodenal ulcer. If I had to choose one, I would say duodenal ulcer, judging by the history.

Pre-Operative Diagnosis

Chronic cholecystitis.

Dr. Benbow's Diagnosis

Leaking duodenal ulcer.

Postoperative Diagnosis

Perforating duodenal ulcer.

Operative Findings

DR. A. DET. VALK: You very seldom have referred pain to the right shoulder with a duodenal ulcer unless there is some leakage from the ulcer. This patient had referred pain under the right shoulder. The history as elicited by me was somewhat different from the one given on the chart, as the patient complained repeatedly of much gas, and at times would have to sit up in bed and "belch" to relieve it. After the severe attack on the morning before operation, she became better and rested quite comfortably during the day and went through the night with only 3 grains of nembutal. The abdomen was quite soft, but there was definite pain and tenderness in the right upper quadrant. When she was seen the night before operation the possibility of a leaking ulcer was considered, but the abdomen was so soft

that it was decided to wait until the next morning to operate.

At operation a paracostal incision was made and a mass was found slightly to the right of the midline and just above the region of the gallbladder. There was a small amount of slimy greenish-colored fluid in the abdominal cavity. This mass proved to be an ulcer of long standing, the leakage from which probably took place the morning before operation. The gallbladder was adherent along the first and second portions of the duodenum, and there was a small amount of fibrin over this region. When the gallbladder was freed there was an opening at the junction of the first and second portions of the duodenum that would admit the tip of the little finger. The gallbladder itself was fairly normal though slightly thickened where it had been adherent to the duodenum. There were no stones present. The question arose as to what to do with the enormous opening just above the entrance of the common duct into the duodenum. A mass of inflammatory fat in this region was sutured over the opening with plain catgut reinforced with silk. A posterior gastro-enterostomy was done. The pylorus was freed and a double suture of No. 3 chromic catgut was passed under it and tied so as to occlude the stomach at this point, thereby preventing any passage of gastric secretions over the ulcer site. The wound was closed with a small drain to the right renal fossa. The patient made an uneventful recovery and was discharged on the twentieth hospital day. There was no wound infection.

DR. BENBOW: I believe that the statement I made about epigastric pain from peptic ulcer radiating to the shoulder was misunderstood. I did not state that pain from a duodenal ulcer radiated to the left shoulder. I said that pain from a peptic ulcer may radiate to the shoulder. By the term peptic ulcer we mean both gastric and duodenal ulcer. If a patient has a peptic ulcer in the cardiac portion of the stomach the pain may radiate to the left shoulder, whereas if it is in the pyloric region of the stomach or duodenum it is more apt to radiate to the right shoulder.

A Clinical Picture. — What is spoken of as a "clinical picture" is not just a photograph of a man sick in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes, and fears.—Peabody, Francis W.: Doctor and Patient, New York, The Macmillan Company, 1939.

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Workman's Compensation Act: Hernia Resulting From an "Accident".

In order to explain this principle of law a case was selected which was heard originally before the Industrial Commission. The essential facts are as follows: The plaintiff in this case worked for the Engineering and Sales Company of Wilmington, N. C., as foreman, but also at times was required to perform manual labor. On October 13, 1936, while the plaintiff and another employee, his assistant, were working on a plumbing job in the construction of a post office building, the plaintiff helped to lift a pipe weighing between 400 and 450 pounds. Upon so doing he felt a severe pain in the lower part of the abdomen. It should perhaps be stated in this connection that at the time the injury occurred all the men who were formerly employed on this particular project had been laid off; only the plaintiff and one laborer were left, and these men were instructed by their superiors to complete the work. According to the plaintiff's testimony he went immediately following the injury to a physician, who diagnosed the case as hernia and administered the necessary treatment. Since this time the injured man had not been able to carry on his usual line of work. The plaintiff stated that he had never suffered from hernia before. Two other physicians were subsequently called in to examine the patient. All the physicians were in practical agreement as to the diagnosis of hernia and gave testimony accordingly.

The Hearing Commissioner made an award to the plaintiff because he felt that, from the evidence, the injury arose out of and in the course of the plaintiff's regular employment. Later the Full Commission affirmed the award of the Hearing Commissioner, but modified the award because of additional evidence. The defendant appealed to the Superior Court of Wake County, and when this court affirmed the Industrial Commission, the defendant appealed to the Supreme Court upon the following exceptions: There was no evidence in the record: (1) that the plaintiff sustained an injury by "accident," which resulted in hernia, as required by the Workman's Compensation Act; (2) that the hernia occurred suddenly, as required by the statute; (3) that the hernia followed "accident", as required by the statute.

It was held by the court that "The evidence supports the inference that the routine had been interrupted by the discharge of all other employees on the job, resulting in claimant's having to lift weights he had never lifted before, and that therefore claimant's injury resulted from the introduction of unusual conditions constituting an 'accident' within the meaning of the Workmens' Compensation Act and not from the usual risks and hazards of his occupation."

It is further held that "The evidence sustains the conclusion that claimant was suffering from a lesion in the vicinity of the left inguinal ring at the time of the examination on the day after the accident, and at that time the process of protrusion down through the injured channel had set in, and while the time when the actual protrusion of the parts took place cannot be definitely known, the evidence discloses that the lesion occurred at the time of the accident and that actual protrusion occurred shortly thereafter, and justifies the conclusion of the Industrial Commission that the hernia appeared 'suddenly' within the meaning of the Statute." (N. C. Supreme Court Report 214, p. 425).

It is seen by the above case that an accident is dependent upon the introduction of unusual condi-

tions and can not occur by the ordinary and expected incidents of employment. The following cases are in contradistinction to the above case: In the case of Neely versus the City of Statesville and the Traveler's Insurance Company, Carrier, (N. C. Supreme Court Report 212, p. 365) it was held that the death of a fireman from heart failure brought on by excitement and exhaustion in fighting a fire was not the result of an accident. Heat, smoke, excitement and physical exertion were the ordinary and expected incidents of his employment. In the case of Slade versus Hosiery Mill, (N. C. Supreme Court Report 209, p. 823), it was held that it was not accident or injury that the employee got wet while washing machines, which was one of his ordinary duties, and later became exposed, contracted pneumonia and died from the results thereof.

BULLETIN BOARD

PRESIDENT'S MESSAGE

Medical Problems in North Carolina

Walter L. Pitkin, in LIFE BEGINS AT FORTY, remarks: "A man has not learned to live until among other accomplishments he can say what he wants to say, or having nothing to say can keep quiet." How few of us have grown up in this respect. To live, among other things, is to respond effectively to all we see and hear; it is also to induce responses in others who interest us.

Your excellent program today bespeaks the fact that your District Society has an exceptionally well organized personnel, wide awake, and acutely aware of all advances in medicine, with the will and vigor to use them with scientific aptitude and fitness. Your future as a scientific organization will depend not so much on postgraduate courses and guest speakers—no matter how much they contribute to your knowledge—as on the careful and constructive work of your members in working up and reporting accurately individual experiences in medicine for the benefit or the criticism of one another. Every member of this organization could make a constructive and valuable contribution to medicine by a careful accumulation of data on some subject in which he has had a broad experience and a vital and abiding interest. It is worth the labor and the trouble which you put into it.

On April 14, 1941, a fateful hour struck for American Medicine when a Federal Jury found the American Medical Association and the Medical Association of the District of Columbia guilty of violation of the Anti-Trust Laws. The jury deliberated about eleven hours, and had among its number two women—one a negress, the other a W.P.A. worker. The trial lasted for two months. Litigation carried to the Supreme Court had brought a ruling that the medical profession, in the meaning of Anti-Trust Statutes, conducts a trade. The Government charged that the two organizations and individual physicians had entered into a conspiracy in restraint of trade which interfered with the operation of a Group Health Association giving medical service to government employees for a monthly advance fee. It was asserted and charged that members of the medical groups were threatened with expulsion from their District Society and banishment from the American Medical Association, which would mean ostracism by all of their medical associates. Defense attorneys and witnesses denied these allegations. They declared that the American Medical Association was not opposed to group medical practice. Evidence was submitted to show that the group health organization in question was ineffectively operated, and incapable of treating the scores of patients it was required to handle. Drs. Fishbein and West of the American Medical Association said in a statement to the press: "Regardless of the verdict, the American Medical Association will continue to do its utmost for the prevention and treatment of disease and the improvement of Public Health."

Group health insurance for the low income groups is claiming the attention of all sections of the country today. It has been endorsed by several of our county societies, and it has been put into practice in several large low income groups within the boundaries of these societies. The insurance has been sponsored by well organized hospital insurance associations. Of necessity, the health insurance plans must have the help and endorsement of the physicians practicing in that community. The question of fees and group health insurance will be a controversial one for some years to come. The recent court decision will make it more so, as the threat of the law is always a potent one. Any constructive efforts on our part to bring medical care to the low income groups will be a contribution to the social evolution of our time. The liberal point of view is just as valuable as the conservative one; for between the two we may hope to find a solution of a pressing social problem.

Address delivered at the Ninth District Medical Society in Statesville, April 10, 1941.

Many other urgent and interesting medical problems confront us in North Carolina. New horizons constantly challenge us; new frontiers are to be crossed; and new boundaries delineated. Mental hygiene is a relatively unexplored field in our state. A rising tide of commitments to our mental hospitals should make us conscious of the fact that over half of the hospital beds in the state are occupied by mental cases; that most of these patients have been ill for more than a year before admission; that our mental hospitals are understaffed with physicians and trained attendants; that their wards are overcrowded; and that little has been done to prevent insanity or to preserve mental health. An aroused public will some day realize these facts, and we, as physicians, should be able to furnish the leadership in a campaign to establish mental hygiene and child guidance clinics in all parts of North Carolina, and to make our State Hospitals the centers of well directed efforts to save much of the human wastage that now afflicts our state. A campaign for mental hygiene similar to the tuberculosis campaign has been successful in states where it has been tried. Coordination between all of our state departments which deal in human relations is also a necessity.

The defense program has made us aware that approximately 40 per cent of our young men of military age have defects which disqualify them for military service. Many of the defects brought out in examinations for military service are remediable. Our problem is how to reach these young men, and how to cure them. The N. Y. A. is preparing to help as many as it can.

We need a broadening of the sterilization laws in North Carolina. Only 350 people have been legally sterilized in the state in the last two years. There are many disabling hereditary diseases which can be prevented only by sterilization of the transmitters. Many of our helpless and blind are hereditarily so. A third of the students who have attended or who now attend the state blind school fall into this class. Approximately 50 per cent of the criminals in our prisons are repeaters, and are found to have venereal diseases upon admission. Why not sterilize those serving third terms in prison?

The Statistical Department of the State Board of Health reports that in 1940 there were 22,140 new cases of venereal diseases. There are now 36,000 active cases of syphilis under treatment in public health clinics in North Carolina. The incidence of syphilis in North Carolina is 40 to 50 per thousand among the whites and 150 to 180 per thousand among the negroes. In a recent survey of draft registrants in Harnett County, the syphilis rate was 6 per thousand for the whites, and 218 per thousand for the negroes. An issue of national importance in the defense program is the problem of protecting men coming from the New England states, where the syphilis rate is only 80 per thousand, to a state like Florida where the rate is 114 per thousand. The venereal disease rate in any army camp is a reflection of conditions in the communities surrounding the camp.

On September 30, 1940, there were 17,150 crippled children on the state register for orthopedic care. According to census figures there were 33,564 deaths in North Carolina in 1938. Of these, 7,494 were children under ten. In the United States as a whole in the same year there were 1,381,394 deaths, of which 162,996 were under ten years of age. Thus in North Carolina the death rate for children under ten was 22.3 per cent, and only 11.8 per cent in the United States. It has been estimated that 75 per cent of the deaths of children are preventable.

I call your attention to these conditions because they exist as fields of useful medical endeavor. I do not mean to infer that they are not being attacked, because they are, and by the best medical brains in North Carolina. Each year progress is being made. It is beyond the scope of a paper of this type to give a recital of all our efforts and accomplishments. Suffice it to say here that the State Board of Health is now sponsoring a total of 496 clinics throughout the state, including 20 for crippled children, and 190 for maternity and infancy care. There are many private free clinics also doing notable work. Poverty and disease go hand in hand, and the greatest morbidity and mortality are in the indigent group. Throughout the ages enlightened people have worked conscientiously on the problem of poverty, and it is as yet unsolved.

The present status of our medical society is satisfactory. Its membership is as large as it has ever been. We owe no money, and our operation is smooth and harmonious. In the death of our beloved secretary, Dr. Thomas W. M. Long, we suffered a tremendous loss. Dr. Isaac Manning, well known

to all of you and well loved wherever he is known, was elected by the executive committee of your society to fill in Dr. Long's unexpired term. He is doing this work in the distinguished fashion which he applies to any task he undertakes.

May I say again that I am grateful to you for your hospitality; that I am certain that you will accept any challenge which may appear on the broad medical horizon; and that success will crown your efforts in making the medical dreams and imaginations of yesterday and today become realities of tomorrow.

HUBERT B. HAYWOOD, M.D.

EIGHTY-EIGHTH ANNUAL SESSION

Official Call

According to the By-Laws, as amended at the 1940 session, the House of Delegates will convene at Pinehurst in the Ball Room of The Carolina, Monday afternoon, May 19, 1940, at 2:00 o'clock.

Hubert B. Haywood, President.

Attest:
I. H. Manning, Secretary-Treasurer.

RESUME OF PROGRAM

(All sessions will be held in the various Convention rooms of The Carolina)

MONDAY, MAY 19, 1941

9:00 a. m.—Registration, North Carolina Public Health Association.
10:00 a. m.—Morning Session, North Carolina Public Health Association. (Ball Room)
2:00 p. m.—House of Delegates, Medical Society of the State of North Carolina. (Ladies Card Room)
2:00 p. m.—Section Meetings, North Carolina Public Health Association:
Health Officers (Ball Room); Nurses (Pine Room); Secretaries (Men's Card Room); Sanitarians (Civic Club, Southern Pines).
3:00 p. m.—Drive to State Sanatorium. Tea, Mrs. P. P. McCain's Residence.
7:30 p. m.—North Carolina Public Health Association. (Ball Room) Address and Business Session.
8:00 p. m.—House of Delegates, Medical Society of the State of North Carolina. (Ladies Card Room)
8:30 p. m.—Keno and Bermuda Movie. (Pine Room)
10:00 p. m.—Dance, North Carolina Public Health Association. (Ball Room)

TUESDAY, MAY 20, 1941

9:00 a. m.—Sanitarians Section, N. C. P. H. A. (Civic Club, Southern Pines)
9:00 a. m.—Woman's Auxiliary Executive Board Meeting. (Pine Room)
9:00 a. m.—First General Session Medical Society of the State of North Carolina. (Ball Room)
10:30 a. m.—Annual Meeting Woman's Auxiliary. (Pine Room)
2:00 p. m.—Sanitarians Section, N. C. P. H. A. (Civic Club, Southern Pines)
2:00 p. m.—Section Meetings, Medical Society of the State of North Carolina:
Ophthalmology and Otolaryngology (Men's Card Room); Practice of Medicine (Ball Room); Surgery (Ladies' Card Room); Public Health and Education (Dutch Room).
4:00 p. m.—Bridge, Pine Room.
9:00 p. m.—President's Reception.
10:00 p. m.—Annual Medical Society Ball. (Ball Room)

WEDNESDAY, MAY 21, 1941

9:00 a. m.—Second General Session, Medical Society of the State of North Carolina. (Ball Room)
9:30 a. m.—Drive to Orchid Gardens or neighboring Antique Shops.
11:30 a. m.—Conjoint Session of the Medical Society of the State of North Carolina and the State Board of Health. (Ball Room)
2:00 p. m.—Section Meetings: General Practice of Medicine and Surgery (Ball Room); Gynecology and Obstetrics (Ladies' Card Room); Pediatrics. (Men's Card Room)
2:30 p. m.—Last Session House of Delegates. (West Parlor)
5:00 p. m.—Third General Session, Medical Society of the State of North Carolina. (Ball Room)

SESSIONS OF THE HOUSE OF DELEGATES

May 19, Monday, 2:00 p. m. (Ladies' Card Room)
8:00 p. m. (Ladies' Card Room)
May 21, Wednesday, 2:30 p. m. (West Parlor)

PROGRAM OF THE GENERAL SESSIONS

FIRST GENERAL SESSION

Tuesday, May 20, 9:00 A. M.
(Ball Room)

1. Call to Order, I. H. Manning, Chairman, Committee on Arrangements.
2. Invocation, Rev. Thaddeus A. Cheatham.
3. Announcements, I. H. Manning, M.D., Secretary-Treasurer.
4. Presentation of the President, Hubert Benbury Haywood, M.D., Raleigh.
5. President's Address, Hubert Benbury Haywood, M.D., Raleigh.
6. Presentation of President's Jewel to Hubert Benbury Haywood, M.D., by President-Elect F. Webb Griffith, M.D., Asheville.
7. Frank H. Lahey, M.D., President-Elect, American Medical Association, Boston, Mass. (Guest Speaker): "Developments in Medicine, Economic and Scientific."
8. Report of Committee on Award of Moore County Medical Society Medal for Best Paper read at 1940 Session and Presentation of Medal.
   I. H. Manning, M.D., Chairman, Chapel Hill.
   Wingate M. Johnson, M.D., Winston-Salem.
   E. J. Wannamaker, Jr., M.D., Charlotte.
9. Report of Obituary Committee:
   J. B. Cranmer, M.D., Chairman, Wilmington.
   Ben J. Lawrence, M.D., Raleigh.
   Paul H. Ringer, M.D., Asheville.
10. Louis H. Clerf, M.D., Philadelphia, Pa. (Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College.) "Tumors of the Larynx and Hypopharynx." Moving pic-

tures and lantern slides. From Section on Ophthalmology and Otolaryngology.

11. T. M. Watson, M.D., Greenville. "Appendicitis in Small Children." From Section on Pediatrics.
12. Mrs. P. P. McCain, Sanatorium. "The Woman's Auxiliary."

SECOND GENERAL SESSION

Wednesday, May 21, 9:00 A. M.

(Ball Room)

1. James A. Watson, M.D., Director of Mental Hygiene, State Board of Charities and Public Welfare, Raleigh. "The Medical Profession and the Problem of Mental Disorder." Discussion opened by James W. Vernon, M.D., Morganton, and F. L. Whelpley, M.D., Goldsboro. From Section on General Practice of Medicine and Surgery.
2. Wilburt C. Davison, M.D., Dean, Duke University School of Medicine, Durham. (McBrayer Memorial Lecturer and Guest Speaker.) "The First Ten Years of Duke University School of Medicine and Duke Hospital."
3. J. W. Tankersley, M.D., Greensboro. "The Surgical Aspects of Splenic Disease." From Section on Surgery.
4. W. T. Rainey, M.D., Fayetteville. "The Management of Congestive Heart Failure." From Section on Practice of Medicine.
5. Major Elmus D. Peasley, M.D., Raleigh. "The Physical Status of the Selective Service Draftees." From Section on Public Health and Education.
6. Charles Hampton Mauzy, M.D., Winston-Salem. "Caesarean Section, Its Incidence and Fetal Mortality in Some Cities in North Carolina." From Section on Gynecology and Obstetrics.
7. 11:30—Conjoint Session of the Medical Society of the State of North Carolina and the State Board of Health.

THIRD GENERAL SESSION

Wednesday, May 21, 5:00 P. M.

(Ball Room)

1. Report of House of Delegates.
2. Unfinished Business.
3. New Business.
4. Installation of President F. Webb Griffith, M.D., and President-Elect by retiring President Hubert Benbury Haywood, M.D.
5. Remarks by President and President-Elect.
6. Adjourn sine die.

SECTION MEETINGS

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Tuesday, May 20, 2:00 P. M.

(Men's Card Room)

H. L. Cook, M.D., Greensboro, Chairman

1. W. P. McKay, M.D., Fayetteville—"Salivary Calculi." (Lantern slides)
2. J. F. McGowan, M.D., Asheville—"The Significance of Cough in Otolaryngology."
3. W. Banks Anderson, M.D., Duke University, Durham—"Virus Diseases Affecting the Eye and Adnexa."
4. C. R. Mills, M.D., Greensboro—"The Importance of Recognizing Fundus Pathology."
5. Louis H. Clerf, M.D., Philadelphia, Pa. (Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College)—"Tumors of the Larynx and Hypopharynx. (Moving pictures and lantern slides) Before First General Session.

SECTION ON SURGERY

Tuesday, May 20, 2:00 P. M.

(Ladies' Card Room)

R. O. Lyday, M.D., Greensboro, Chairman

1. R. B. McKnight, M.D., Charlotte—"Some Observations Drawn from a Series of 500 Consecutive Thyroidectomies."
2. T. C. Bost, M.D., Charlotte—"Additional New Technic for the Cure of Inguinal Hernia."
3. Newsom P. Battle, M.D., Rocky Mount—"Perforated Duodenal Ulcer."
4. David J. Rose, M.D., Goldsboro — "Vaginal Ureterolithotomy."
5. G. C. Cooke, M.D., Winston-Salem — "Some Conclusions Derived from 200 Cholecystectomies."
6. Lenox D. Baker, M.D., Durham — "The Use of Antitoxin and Chemotherapy in the Treatment of Staphylococcus Septicemia and Osteomyelitis." Discussion opened by J. E. Jacobs, M.D., Charlotte.
7. J. W. Tankersley, M.D., Greensboro — "The Surgical Aspects of Splenic Disease." Before the Second General Session.

SECTION ON PRACTICE OF MEDICINE

Tuesday, May 20, 2:00 P. M.

(Ball Room)

C. D. Thomas, M.D., Sanatorium, Chairman

1. C. D. Thomas, M.D., Sanatorium (Chairman's Address)—"Tuberculosis and National Defense."
2. Walter R. Johnson, M.D., Asheville—"Is Diverticulitis of the Colon a Surgical Disease?" Discussion opened by R. B. McKnight, M.D., Charlotte.
3. C. Graham Reid, M.D., Charlotte—"Medical Management of the Bleeding Ulcer." Discussion opened by Walter R. Johnson, M.D., Charlotte.
4. W. Raney Stanford M.D., Durham — "Acute Glomerulo-Nephritis with Special Reference to Treatment." Discussion opened by Wm. deB. MacNider, M.D., Chapel Hill.
5. J. C. Pass Fearrington, M.D., Winston-Salem —"Management of the Early Diabetic." Discussion opened by O. Norris Smith, M.D., Greensboro.
6. R. MacBrayer, M.D., Summit, N. J.—"Androgenic Therapy in General Practice." Discussion opened by Hamilton W. McKay, M.D., Charlotte.
7. W. T. Rainey, M.D., Fayetteville—"The Management of Congestive Heart Failure." Before Second General Session.

SECTION ON PUBLIC HEALTH AND EDUCATION

Tuesday, May 20, 2:00 P. M.

(Dutch Room)

Geo. H. Sumner, M.D., Asheboro, Chairman

1. Captain J. W. Roy Norton, M.D., Fort Bragg —"Medical Preparedness in National Defense."
2. C. D. Berry, M.D., and R. A. Alter, M.D., Durham—"A Practical Plan for the Reduction of Infant and Maternal Mortality."
3. Frank S. Fellows, M.D., Raleigh—"Relationship of Malaria to False Positive Serologic Test for Syphilis."
4. Major Elmus D. Peasley, M.D., Raleigh—"The Physical Status of the Selective Service Draftees." Before Second General Session.

SECTION ON GYNECOLOGY AND OBSTETRICS

Wednesday, May 21, 2:00 P. M.

(Ladies' Card Room)

W. L. Thomas, M.D., Durham, Chairman

1. W. Z. Bradford, M.D., Charlotte—"A Comparative Study of Pregnancy in the White and Colored Races."

2. C. N. Burton, M.D., Asheville—"The Clinical Application of Chemotherapy in Obstetrics and Gynecology."
3. Kenneth Dickinson, M.D., Raleigh—"The Maternal Pelvis as Seen by Routine X-Ray Examination."
4. William S. Dosher, M.D., Wilmington—"The Etiology of Uterine Prolapse and Its Management."
5. Lance T. Moore, M.D., Kannapolis — "Prolonged Labor—Its Etiology and Management."
6. Charles Hampton Mauzy, M.D., Winston-Salem—"Caesarean Section, Its Incidence and Fetal Mortality in Some Cities in North Carolina." Before Second General Session.

SECTION ON PEDIATRICS

Wednesday, May 21, 2:00 P. M.

(Men's Card Room)

B. W. Roberts, M.D., Durham, Chairman

1. W. E. Keiter, M.D., Kinston—"Treatment of Bacillary Dysentery in Infants."
2. John A. Shaw, M.D., Fayetteville—"Childhood Tuberculosis."
3. Kenneth B. Geddie, M.D., High Point — "A Familial Study of Enlarged Parietal Foramina."
4. Charles F. Williams, M.D., Raleigh—"Measles —Wake County Epidemic 1941."
5. T. M. Watson, M.D., Greenville—"Appendicitis in Small Children." Before the First General Session.

SECTION ON GENERAL PRACTICE OF MEDICINE AND SURGERY

Wednesday, May 21, 2:00 P. M.

(Ball Room)

H. C. Thompson, M.D., Shelby, Chairman

1. W. C. Highsmith, M.D., Fayetteville—"Mechanism of Contraception." (Illustrated)
2. Paul C. Reque, M.D., and Paul L. Williams, M.D., Duke University, Durham — "Occupational Dermatitis." Discussion opened by Joseph A. Elliott, M.D., Charlotte.
3. Robert B. Lawson, M.D., School of Public Health, Chapel Hill—"A Practical Plan for the Use of Vitamin K in the Prevention of Hemorrhage in the Newly-Born Infant." Discussion opened by W. Houston Moore, M.D., Wilmington and T. M. Watson, M.D., Greenville.
5. Roscoe D. McMillan, M.D., Red Springs—"The Management of Some of the Problems of Later Life."
6. Eugene M. Carr, M.D., Asheville — "Rheumatic Fever." Discussion opened by C. M. Gilmore, M.D., Greensboro.
7. James A. Watson, M.D., Director of Mental Hygiene, State Board of Charities and Public Welfare, Raleigh — "The Medical Profession and the Problem of Mental Disorder." Discussion opened by James W. Vernon, M.D., Morganton and F. L. Whelpley, M.D., Goldsboro. Before Second General Session.

Thirty-First Annual Meeting

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

May 19, 1941

Carolina Hotel, Pinehurst, N. C.

President—J. W. Williams, Williamston
Vice-President—R. E. Rhyne, Gastonia
Secretary-Treasurer—Ralph J. Sykes, Raleigh

MONDAY MORNING, MAY 19

President J. W. Williams, Presiding

(Ball Room)

9:00 a. m.—Registration.
10:00 a. m.—Invocation: Rev. W. S. Golden, Carthage.
Medical Problems Involved in Better Maternal and Child Health Service. Dr. A. W. Makepeace, Chapel Hill. Discussion led by Dr. G. M. Cooper, Raleigh, and Miss Mabel Patton, Raleigh.
Public Health Problems Created in Flood Disasters. Dr. Robert F. Young, Weldon. Discussion led by Drs. H. G. Baity, Chapel Hill, W. R. Parker, Jackson, and C. N. Sisk, Waynesville.
The Recent Wassermann Survey Conducted on Draftees. Dr. John H. Hamilton, Raleigh. Discussion led by Drs. Carl V. Reynolds, Raleigh, and J. C. Knox, Raleigh.
Public Health and National Defense. Dr. M. J. Rosenau, Chapel Hill. Discussion led by Dr. J. Roy Norton, Fort Bragg.
The Coordination of Public Health Nursing Services With Other Services in a Generalized Program. Mrs. Lewis Raulston, Greensboro.

MONDAY AFTERNOON, MAY 19

2:00 p. m.—Sectional Meetings:
Health Officers' Section, Dr. C. N. Sisk, Chairman. (Ball Room)
Nurses' Section, Miss Ruth Council, Chairman. (Pine Room)
Sanitarians' Section, Mr. W. C. Stallings, Chairman. (Civic Club, Southern Pines, N. C.)
Secretaries' Section, Mrs. Mayme Stanley, Chairman. (Men's Card Room)

MONDAY EVENING, MAY 19

President J. W. Williams, Presiding

7:30 p. m.—Address—Relationships in State and Local Public Health Work. Dr. H. S. Mustard, Professor of Preventive Medicine, Columbia University, New York City. (Ball Room)
8:30 p. m.—Business Session. (Ball Room)
10:00 p. m.—Dance. (Ball Room)

HEALTH OFFICERS' SECTION

Chairman—Dr. C. N. Sisk
Secretary—Dr. W. P. Richardson

MONDAY, MAY 19, 2:00 P. M.

(Ball Room)

1. Health Problems in an Area Surrounding a Large Military Establishment—Dr. M. T. Foster, Cumberland County Health Officer, Fayetteville, N. C.
2. Instruction vs. Service in the Health Program—Dr. P. Y. Greene, Alamance County Health Officer, Burlington, N. C.
3. Evaluation of the Syphilis Program of the Local Health Department — Dr. John J. Wright, Research Epidemiologist, School of Public Health, University of North Carolina.
4. The N. Y. A. Health Program—Dr. George E. Waters, North Carolina N. Y. A. Health Supervisor.
5. Election of Officers and Other Business.

ALUMNI MEETINGS

TUESDAY, MAY 20

1:00 p. m.—Wake Forest Alumni Luncheon. (Crystal Room)
1:00 p. m.—Fracture Committee Luncheon. (Private Dining Room)
6:30 p. m.—University of North Carolina Alumni. (Crystal Room)
6:30 p. m.—Duke University Alumni. (Private Dining Room)

WEDNESDAY, MAY 21

1:00 p. m.—Jefferson Alumni Luncheon. (Crystal Room)

1:00 p. m.—University of Pennsylvania Luncheon. No extra charge for Luncheon or Dinner Meetings for those registered at the Carolina: others, Luncheon Meeting $1.50 per plate; Dinner Meetings, $2.00 per plate.

SCIENTIFIC EXHIBITS

J. Lamar Callaway, M.D., and Miss Ruth E. Barker, A.B., M.A., From Section of Dermatology and Syphilology, Department of Medicine and from the Social Service Department, Duke University School of Medicine. "Role of the Medical Social Worker in the Control of Syphilis."

N. C. Hospital Savings Association, Chapel Hill, N. C.

Barnes Woodhall, M.D., Durham. "Medical Illustration in Neurosurgery."

"Public Health Nursing." Nurses Section, North Carolina Public Health Association.

COMMERCIAL EXHIBITS

American Hospital Supply Company, Chicago, Ill. Spaces No. 61, 62, and 63.

A. S. Aloe Company, Saint Louis, Mo. Spaces No. 29 and 30.

The Borden Company, New York City. Space No. 47.

Ciba Pharmaceutical Products, Inc., Summit, N. J. Spaces 66 and 67.

Endo Products, Inc., Richmond Hill, N. Y. Space No. 56.

C. B. Fleet Company, Lynchburg, Va. Space 16.

General Electric X-Ray Corporation, Chicago, Ill. Spaces No. 14 and 15.

Lederle Laboratories, Inc., New York City. Space No. 34.

Harrower Laboratory, Inc., Glendale, Cal. Space No. 42.

Holland-Rantos Company, Inc., New York City. Space No. 38.

Eli Lilly and Company, Indianapolis, Ind. Spaces No. 36 and 37.

M & R Dietetic Laboratories, Inc., Columbus, Ohio. Spaces No. 48 and 49.

Mead Johnson & Company, Evansville, Ind. Spaces No. 45 and 46.

Picker X-Ray Corporation, New York City. Spaces No. 25 and 26.

Powers and Anderson Surgical Instrument Company, Norfolk, Va. Spaces No. 50, 51, and 52.

S. & H. X-Ray Company, Atlanta, Ga. Card Room.

Schering Corporation, Bloomfield, N. J. Spaces No. 21 and 22.

Smith, Kline & French Laboratories, Philadelphia, Pa. Spaces No. 43 and 44.

E. R. Squibb & Sons, New York City. Spaces No. 23 and 24.

Tablerock Laboratories, Greenville, S. C. Space No. 18.

Valentine Company, Inc., Richmond, Va. Space No. 17.

Van Pelt & Brown, Inc., Richmond, Va. Spaces No. 27 and 28.

Winchester-Ritch Company, Greensboro, N. C. Spaces No. 53, 54, and 55.

Winchester Surgical Supply Company, Charlotte, N. C. Spaces No. 58, 59, and 60 .

Winthrop Chemical Company, Inc., New York City. Spaces No. 19 and 20.

John Wyeth & Brother, Inc., Philadelphia, Pa. Spaces No. 64 and 65.

NOTICE TO ESSAYISTS

Important

Each Essayist is requested (see By-Laws) to hand to the Chairman following the reading of the paper, an original copy, together with any illustrations or other material used with the paper. Those desiring to review their papers before publication should make a carbon copy for such purpose.

POSTGRADUATE COURSES IN PEDIATRICS AND OBSTETRICS

The State Board of Health, Duke Hospital and the North Carolina Medical Society are cooperating in a new type of postgraduate training for general practitioners. These courses are being made available by appropriations from the United States Children's Bureau from Social Security funds. The courses will last five days, Monday through Friday, and will be repeated weekly through the spring and summer, or as often as there is a demand.

The classes are to be limited to four general practitioners a week. The course will be informal, clinical and practical. There will be no examinations given and no certificates will be issued. The courses will be conducted by Dr. A. W. Makepeace (obstetrician) and Dr. Robert B. Lawson (pediatrician) and various staff members of the departments of obstetrics and pediatrics of Duke Hospital.

There will be no expense to physicians attending these courses. Meals will be furnished in the doctors' dining room at Duke Hospital and rooms will be available in the graduate dormitory on the Duke campus. There will be no charge for tuition, board and lodging—if you stay for the entire course.

It is hoped that at least one group of physicians from every local medical society will attend these courses.

All applications should be sent to Dr. G. M. Cooper, State Board of Health, Raleigh. The first course will began April 14, 1941.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA

Dr. Russell L. Holman, Associate Professor of Pathology, attended the meeting of the Federation of Societies for Experimental Biology the week of April 14-19 in Chicago, and presented a paper before the American Society for Experimental Pathology entitled: "Acute Necrotizing Arteritis, Aortitis, and Auriculitis Following Uranium Nitrate Injury in Dogs With Altered Plasma Proteins."

* * *

Dr. Clark E. Brown, of the Department of Pathology, has just returned from the annual meeting of the American Association of Pathologists and Bacteriologists held in New York City April 9-11, inclusive.

* * *

Dr. G. L. Donnelly, Associate Professor of Pharmacology, presented a paper before the American Society for Pharmacology and Experimental Therapeutics in Chicago on April 19, the title being "The Protection of the Kidney Against the Toxic Action of Certain Heavy Metals by the Use of Sodium Citrate."

* * *

Dr. Granvil C. Kyker, Assistant Professor of Biological Chemistry, presented a paper on "Absorption Studies in Quinine Administration to Dogs" before the American Society of Biological Chemists in Chicago during the week of April 16-19.

Doctors A. T. Miller and H. D. Bruner attended the American Physiological Society during the recent meeting of the American Federation of Biological Sciences in Chicago.

* * *

Doctors C. D. VanCleave and W. C. George, of the Department of Anatomy, presented papers at the recent meeting of the American Association of Anatomists in Chicago, April 9-12. The former presented a paper entitled "The Inductive Effects of Several Non-Living Organs on Isolated Gastrular Ectoderm", and the latter a paper "A Presomite Human Embryo With Chorda Canal".

* * *

At the meeting of the North Carolina Academy of Sciences in Chapel Hill, April 25-26, the following members of the Medical Faculty read papers: Dr. H. Ward Ferrill on "Insulin and Growth"; Dr. W. C. George on "Some Young Human Embryos With Particular Reference to the Prechordal Plate"; Dr. Granvil Kyker on "Studies on the Absorption of Quinine"; Mr. Carl Anderson, Research Assistant of the Biological Chemistry Department, on "Quinine Absorption from Isolated Intestinal Loops"; Dr. James C. Andrews and Mr. W. E. Cornatzer, of the Biological Chemistry Department, on "The Properties of the Proteolytic Enzyme of the Fig".

* * *

Dr. William deB. MacNider, Professor of Pharmacology, attended a meeting of the American Philosophical Society in Philadelphia April 25 and 26, and the National Academy of Sciences in Washington April 28 and 29.

* * *

Dr. Wilson G. Smillie, who is Head of the Department of Public Health and Preventive Medicine at Cornell University Medical College, has been appointed Visiting Professor of Public Health Administration in the School of Public Health, University of North Carolina. Dr. Smillie is giving a course in Public Health Administration in the School of Public Health during the spring quarter, 1941.

* * *

Miss Margaret Blee, Instructor in Public Health Nursing of the University of California at Berkeley, has been appointed Assistant Professor of Public Health Nursing in the School of Public Health, the University of North Carolina at Chapel Hill.

* * *

Dr. H. G. Baity has been appointed special consultant to the U. S. Public Health Service to assist in conducting orientation courses for public health personnel who are to be employed in connection with the Health and Sanitation Service to be provided in defense areas.

* * *

Professor Harold B. Gotaas will present before a meeting of the American Association of Industrial Physicians and Surgeons and the American Industrial Hygiene Association a paper, "Natural Disappearance and Disinfection of Bacteria in Air", by A. E. Williamson and H. B. Gotaas, on May 7 at Pittsburgh.

* * *

Miss Lucile Logan, known to scientists throughout the country as an authority on malaria parasites, was in Chapel Hill for two weeks in April aiding Dr. Harold W. Brown, of the University's School of Public Health, with instruction in malariology. The descriptions of malaria parasites recently published by Miss Logan and a co-worker are recognized as the standard by investigators in this field. She was recently detailed by the Rockefeller Foundation Malaria Research Laboratory for the work at Chapel Hill.

News Notes from the State Board of Health

During the first quarter of 1941 425 North Carolinians were killed by preventable accidents, as compared with a total of 1,535 for the entire year of 1940. If the same rate is maintained that has marked the year so far, the total will be 1,700, as compared with 1,535 last year and 1,481 in 1939—an increase of 165 over 1940 and 219 over 1939.

During the entire period in which the United States was engaged in fighting in the first World War, there was a total of 833 fatal casualties among North Carolina men overseas, 629 of whom were killed in battle and 204 died as the direct result of wounds. This was just a few more than half as many as actually died from preventable accidents within North Carolina last year.

Last year, out of 988 persons who were killed outright as the result of highway accidents in North Carolina, 110 were the victims of drunken driving. These figures come from the office of Mr. Ronald Hocutt, Director of the North Carolina Highway Safety Division.

* * *

Through March, this year, there were born in North Carolina 20,333 babies. During 1940, when there was a total of 80,971 births in our state, 4,646 died during the first year of their existence, the infant mortality rate having been 56.3, as compared with a general death rate of 9.0.

So far this year infant mortality has shown an increase. Through March, there had been 1,465 deaths among babies under a year old, as compared with 1,317 for the corresponding period in 1940—an increase this year of 148. There has been a decrease of 14 in the number of maternal deaths.

* * *

Late census counts would indicate that there are as many as 60,000 physically handicapped persons in our state. The State Board of Health, through its crippled children's services, has conducted a program of finding children and youth who, from birth, disease, or injury have sustained disabling and handicapping conditions. Through the coordinating services of the crippled children's agency these children and youth are being examined and classified, as they are found, into groups for preserving and conditioning functional factors looking toward the ultimate in physical and vocational rehabilitation. We now have registered some 17,000 crippled persons under 21 years of age. Annually, hospital care and treatment is provided to 1,500, and additional numbers are treated in clinics or are securing preservation of physical qualities which otherwise would be lost.

* * *

A 103-page handbook for teachers has been issued by the Division of Oral Hygiene of the North Carolina State Board of Health and distribution of 10,000 copies now is in progress, it was announced by Dr. Ernest A. Branch, Director of the Division.

The subject of the book is "Teaching Mouth Health in North Carolina." It is illustrated with pictures and charts and is rich in reference material.

News Notes from the North Carolina Tuberculosis Association

A symposium on tuberculosis in industry will be held at Saranac Lake, N. Y., from June 9 to June 14. The symposium will be sponsored by the Trudeau School of Tuberculosis. The tuition fee will be $25, and applications are being received by Roy Dayton at the School.

It is hoped that construction will be started by July on the first units of the new $600,000 Eastern North Carolina Sanatorium at Wilson. The sanatorium will be located on a 125-acre tract of land, donated by the citizens of Wilson.

The funds appropriated by the North Carolina General Assembly will provide, first, for a completely serviced unit for 200 patients. The eventual capacity of the sanatorium will be 400 patients.

Hospital Saving Association

On April 15 the record of the Hospital Saving Association of North Carolina was as follows:

Net membership to date	145,880
Net increase during 3½ months of 1941	8,119
Members admitted to date	34,589
Members admitted during 3½ months of 1941	3,672
Number of admissions to date	46,560
Admissions during 3½ months of 1941	5,777
Days used to date	367,121
Days used during 3½ months of 1941	46,717
Hospital bills paid to date	$1,500,000.49
Bills paid during 3½ months of 1941	$184,957.22

Fifth District Medical Society

The Fifth District Medical Society held its spring meeting at the Sanford Country Club as guests of the Lee County Medical Society, on April 15 at 4 p. m. Those taking part in the program were Dr. G. C. Chiles of Sanford, who presented some cases of hernia prepared by fascia; Dr. J. H. Byerly of Sanford, who presented a case of cranial stenosis with exophthalmos; Dr. Lynn McIver of Sanford, who showed a 15 year old colored girl with esteogenic sarcoma of the skull and metastasis; Dr. I. H. Manning of Chapel Hill, who gave a paper on medical and hospital costs; Mr. Pittman, who spoke on veterans' care; and Dr. Lenox D. Baker of Durham, who gave a paper on the treatment of Colles fracture. Following the program a chicken barbecue dinner was served. Dr. J. F. L. Knight, president of the society, presided.

Eighth District Medical Society

The Eighth District Medical Society met in Winston-Salem on April 16. The afternoon session, beginning at 1:30 p. m., was held in the new Bowman Gray School of Medicine of Wake Forest College, with Dr. Paul W. Johnson of Winston-Salem, presiding. The program was as follows:

Dr. Robert L. McMillan: "Massive Hemorrhage From the Stomach and Duodenum—Its Causes and Treatment" — Discussant: Dr. Wingate Johnson.

Dr. C. L. Haywood, Jr.: "Pre-Operative Skin Disinfection With 70 Per Cent Alcohol by Weight"—Discussant: Dr. W. H. Sprunt, Jr.

Dr. L. D. Tyson, Jr.: "Breech Deliveries"—Discussant: Dr. C. H. Mauzy.

Dr. Samuel F. Ravenel: "Chemotherapy of Bacillary Dysentery", with lantern slides—Discussant: Dr. L. J. Butler.

Dr. F. K. Garvey: "Present Status of the Male Sex Hormone"—Discussant: Dr. H. C. Harrell.

Following the afternoon session, members of the society attended the laying of the corner stone of the Bowman Gray School of Medicine. At 7 p. m. a banquet was held at the Robert E. Lee Hotel. Dr. Frederic M. Hanes of Duke University introduced the guest speaker, Dr. Nathan B. van Etten, President of the American Medical Association. Dr. van Etten spoke on "Fitness for the National Emergency".

Ninth District Medical Society

The Ninth District Medical Society held a Symposium on Sulfonamides on April 10 at the Vance Hotel in Statesville. The meeting began at 2 p. m., and the following program was presented at the afternoon session:

1. "Effects of Sulfonamides as Shown by X-Ray"—Dr. L. W. Oehlbeck, Morganton.
   Discussion: Dr. F. G. Sigmon, Salisbury.
2. "Importance of Certain Laboratory Procedures in the Use of the Sulfonamides"—Dr. Erle B. Craven, Jr., Lexington.
   Discussion: Dr. C. C. Carpenter, and Dr. J. C. Reece, Winston-Salem.
3. "Sulfonamides in Urology"—Dr. J. W. Frazier, Salisbury.
   Discussion: Dr. G. F. Busby, Salisbury, and Dr. J. D. Whaley, Hickory.
4. "Sulfonamides as Applied to Eye, Ear, Nose and Throat Problems"—Dr. G. M. Billings, Morganton, Dr. M. B. Clayton, Statesville.
5. "Sulfonamides in Pediatrics"—Dr. Dan Stewart, Hickory.
   Discussion: Dr. Caroline McNairy, Lenoir.

Dr. J. W. Vernon was toastmaster at the dinner meeting at 7 p. m., and Dr. Jerome Harris, of the Department of Pediatrics, Duke University, was guest speaker. His subject was "The Use of the Sulfonamides".

Officers of the society are: President, Dr. W. D. McLelland, Mooresville; vice president, Dr. S. A. Rhyne, Statesville; district councillor, Dr. I. E. Shafer, Salisbury; secretary-treasurer, Dr. J. Sam Holbrook, Statesville.

Thermal Belt Medical Society

The Thermal Belt Medical Society met at Marion, N. C., on Thursday, April 17, at 7 p. m. After dinner the following program was presented:

"Migraine"—Dr. Phillip Padgett, Kings Mountain.

"Tuberculosis"—Dr. S. M. Bittinger, Black Mountain.

"Thoracoplasty"—Dr. Julian Moore, Asheville.

Buncombe County Medical Society

Dr. John Elliott of Salisbury was the guest speaker at a dinner meeting of the Buncombe County Medical Society, held in the S & W Cafeteria on April 7. His subject was "The Preparation and Use of Blood Plasma". At the second monthly meeting, held on April 21, a paper on "Pulmonary Hemorrhage" was read by Dr. Karl Schaffle, and discussed by Dr. S. M. Bittinger and Dr. I. H. Wagner.

Guilford County Medical Society

The Guilford County Medical Society met at the King Cotton Hotel on April 3 at 6:30 p. m. Dr. Robert B. Lawson, Pediatric Consultant in the School of Public Health at the University of North Carolina, gave a talk on "Preventive Methods in Pediatrics", with special reference to the use of vitamin K in hemorrhagic disease of the newborn. A film entitled "Studies in Human Fertility—Methods for the Control of Conception", produced by Ortho Products, Incorporated, was shown.

Moore County Medical Society

The Moore County Medical Society has donated $50.00 to the Committee on Medical and Surgical Supply for the purpose of buying surgical instruments and other supplies for the British war hospitals.

Mecklenburg County Medical Society

On April 1 the Mecklenburg County Medical Society heard the program which was originally scheduled for March. Dr. T. W. Baker spoke on "The Mechanism of Cardiac Pain and Its Differentiation From Chest Pains of Radicular Origin", and Dr. Joseph Elliott gave a "Discussion of the Diagnosis of Skin Disease, With Kodachrome Demonstrations". At the second monthly meeting, held on April 15, Dr. James Gibbon spoke on "Surgical Lesions of the Colon", and Dr. Paul Sanger discussed "Experiences with Sulfaguanidine".

North Carolina Neuropsychiatric Association

The North Carolina Neuropsychiatric Association met at the Duke Hospital on Friday, March 28, 1941, with Dr. Raymond S. Crispell, of the hospital, as the chairman of arrangements and program. The program started at 2 p. m. with an inspection of the new out-patient and in-patient psychiatric clinics at the Duke Hospital and with demonstrations of electroencephalographies ("brain waves"). This was followed by a scientific meeting at 2:45 p. m. in the Duke Hospital amphitheatre, with papers on "Electroencephalography" by Dr. Hans Loewenbach and on "The Rorschach Tests" by Dr. Edward Stainbrook, both of the psychiatric staff of the Duke Hospital. Dr. W. P. Beckman, of the Columbia, S. C., State Hospital, spoke on "Problems and Progress in Mental Hygiene in South Carolina." Dr. Beckman is in charge of all the out-patient work that is conducted in various cities in South Carolina by the S. C. State Hospital System. The last presentation of the meeting was by Dr. Walter Freeman, of Washington, D. C., on "Indications, Procedures and Results in Prefrontal Lobotomies."*

There are fifty-six active members of the North Carolina Neuropsychiatric Association, all of whom are practicing physicians in North Carolina, members of the North Carolina Medical Society, and engaged or interested in the treatment and prevention of mental and nervous diseases.

Among the aims and functions of the Association is the extension of the latest knowledge concerning mental and nervous diseases, not only to its own members, but to the medical profession at large. In addition, the Association has always been interested in the applications of neuropsychiatry and in the prevention, as well as the treatment, of mental and nervous diseases and in the closely related and applied subject of mental hygiene.

The officers of the Association for 1940-41 were: President, Dr. Mark A. Griffin, of Asheville; Vice President, Dr. Archie A. Barron, of Charlotte; Secretary-Treasurer, Dr. Malcolm Kemp, of Pinebluff. The officers elected at the recent March meeting for the ensuing year were: Dr. Archie A. Barron, President; Dr. Frank B. Watkins, of Morganton, Vice President; Dr. R. Burke Suitt, of Durham, Secretary-Treasurer. At the last meeting ten new active and three new honorary members were elected.

While the meeting in the Duke Hospital amphitheatre on March 28 was of a somewhat technical and scientific nature, it was open to all of the medical profession, also to a few interested laymen. There was an attendance of over one hundred, and the meeting was concluded with a collation at the home of Dr. Crispell on the West Duke Campus.

*This paper is to be published in the North Carolina Medical Journal.

The Second American Congress on Obstetrics and Gynecology

The Second American Congress on Obstetrics and Gynecology will be held in St. Louis, Missouri, April 6 to 10, 1942. All of the meetings and both the Commercial and Educational and Scientific Exhibits will be held in the Public Auditorium.

The general plan for the program will be much the same as that of the first Congress, which was held in Cleveland, September 11-15, 1939, with sectional meetings for the various groups (nurses, public health administrators, educators, and physicians), general sessions for all members attending the Congress, and round tables. There will be evening sessions open to the general public.

Admission to the Congress will be by individual membership card only. These may be secured by payment of the five dollars registration fee, any time after September 1, 1941.

For further information, apply to the Chicago office of the Congress, 650 Rush Street.

Examinations

American Board of Obstetrics and Gynecology

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Cleveland, Ohio, by the entire Board from Wednesday, May 28, to Monday, June 2, 1941, inclusive, prior to the opening of the annual meeting of the American Medical Association in Cleveland.

Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates.

The Board requests that all prospective candidates who plan to submit applications in the near future request and use the new application form which has this year been inaugurated by the Board. The Secretary wil be glad to furnish these forms upon request, together with information regarding Board requirements. Address Dr. Paul Titus, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

This Board will hold its annual dinner for Diplomates, and others interested in the work of the Board, on Wednesday evening, June 4, 1941, at the Wade Park Manor Hotel, Cleveland, Ohio, immediately following the close of the Part II examinations. Diplomates certified at the preceding days' examinations will be introduced personally, and there will be several speakers.

Tickets at $3.25 each may be obtained from Dr. Joseph L. Baer, chairman, 104 South Michigan Avenue, Chicago, Illinois, or at the Registration Desk during the examination period.

Postgraduate Courses in Obstetrics

The Illinois State Department of Public Health and the Children's Bureau, U. S. Department of Labor are sponsoring ten 4-weeks courses in obstetrics at the Chicago Lying-in Hospital during the fiscal year 1941-1942. Only a limited number of physicians will be accepted for each course. The only cost to the individual is for room and board, and $25.00 ($10.00 of which is refunded at the completion of the course). Applications and inquiries should be addressed to: Post-Graduate Course, Department of Obstetrics and Gynecology, 5848 Drexel Avenue, Chicago, Illinois.

Course in Electrocardiography

The Michael Reese Hospital of Chicago offers a two weeks' intensive course in electrocardiography by Dr. Louis N. Katz, Director of Cardiovascular Research, from August 18 to August 30. This course is offered for the general practitioner. An hourly program of the course will be sent on request to Michael Reese Hospital, Cardiovascular Department, 29th and Ellis Avenue, Chicago, Illinois.

Warning
Sulfathiazole-Winthrop

In the manufacture of tablets of Sulfathiazole-Winthrop, "M.P." control series (December, 1940), some of the tablets were accidentally contaminated with phenobarbital. Immediately upon discovery of this, active steps were taken by us to recover this entire series.

Our attempt to assure the return of all tablets of the "M.P." control series is being continued, in conjunction with the nationwide effort of the U. S. Food and Drug Administration and other public agencies. In the interest of public safety, your prompt cooperation with us and with these public agencies in this search will be greatly appreciated, as these contaminated tablets may be dangerous.

Please examine the mark on every package of our sulfathiazole tablets, and return to us immediately for exchange any package marked with the letters "M.P." If you have dispensed tablets from bottles bearing these control letters, will you kindly endeavor to recover all such tablets which have not been consumed.

Needless to say, this occurrence is a matter of profound regret to us. Nothing of this nature has ever happened before in our history, and we are taking extraordinary precautions to prevent a recurrence. For more than two decades we have served the medical and pharmaceutical professions. During that period we have earned a reputation for high standards and outstanding products which we shall strive faithfully to maintain.

WINTHROP CHEMICAL COMPANY, Inc.

News Item from the Cooperative Medical Advertising Bureau

As much as we individually might be in sympathy with the "Bundles for Britain" movement, one recent phase of it hardly has our approval.

At several points in the country there has been a movement to collect the samples left by pharmaceutical detail men in physicians' offices and include them in the shipments for British Relief. This is an expensive and uncontrolled way of supplying pharmaceutical products.

Most all of the pharmaceutical manufacturers have individually donated supplies with vitamin capsules and other needed pharmaceutical products to the British Relief at no charge.

The packaging of a sample increases the cost and if these samples are collected and sent to Britain, then the purpose for which they were intended, that is, for the use of physicians, is not accomplished, and the heterogeneous material that reaches British Relief probably would have little value. Many samples left physicians would be dangerous if used indiscriminately without the advice of a physician.

In some cases individual City and County Medical Societies have been asked to cooperate with the collection of these samples. It is our opinion that such cooperation should be refused for the obvious reasons stated.

Bowling

Plans are on foot to have a bowling tournament during the next meeting of the American Medical Association. It is hoped that teams can be formed representing various states. Physicians who are interested in bowling should contact Dr. Lewis W. Bremerman, 1709 West 8th Street, Los Angeles, California.

News Notes

Dr. T. R. Huffines of Asheville, and Dr. Preston Nowlin of Charlotte have been certified by the American Board of Urology.

* * *

Dr. L. W. Kelly and Dr. Andrew Blair, of Charlotte, have been elected Fellows in the American College of Physicians.

* * *

Dr. H. L. Sloan of Charlotte has been elected to membership in the Phi Beta Kappa Associates, a group with a membership limited to two hundred which has been organized from the 90,000 Phi Beta Kappa members.

* * *

Dr. W. E. Overcash of Southern Pines is moving to Boston to do medical practice.

* * *

Dr. John Young of Asheville and Dr. Nathan Matros of Oteen have been called into active service by the Navy. Dr. Young is assigned to the Parris Island Marine Base, S. C., and Dr. Matros to the Naval Aviation Center at Corpus Christi, Texas.

* * *

Dr. M. G. Stutts of Southern Pines is joining the Army.

Squibb Offers Water-Soluble Vitamins in Single Wafer

Deficiencies of the vitamin B complex and vitamin C (the water-soluble vitamins), it is now believed, are commonly associated. and it is for that reason E. R. Squibb & Sons, New York, developed Vitamin B Complex Wafers with Vitamin C, which they recently placed on the market. Each of these wafers, which have a malted milk flavor and are very palatable, contains 2 gm. of high potency brewers' yeast especially cultured for use as a source of the whole natural vitamin B complex, and 7.5 mg. crystalline ascorbic acid. Each wafer has the vitamin activity of:

- 100 U.S.P. XI (Int.) units of thiamine (vitamin B_1)
- 150 micrograms riboflavin (vitamin G; B_2)
- 130 micrograms (approx.) pyridoxine (vitamin B_6)
- 800 micrograms (approx.) pantothenic acid (a filtrate factor)
- 150 U.S.P. XI (Int.) units (7.5 mg.) ascorbic acid (vitamin C)
- Also contains: 1.1 gm. protein; 1.6 carbohydrate, 0.1 gm. fat, 0.1 gm. mineral (ash)

Intended principally for prophylactic use, Squibb Vitamin B Complex Wafers with Vitamin C are of particular value where acceptability is an important factor. They are used as a diet supplement in the prevention or treatment of deficiencies in the water-soluble vitamin B complex and vitamin C. Three or more are taken daily as the physician prescribes.

Squibb Vitamin B Complex Wafers with Vitamin C are supplied in bottles of 50 and 100 wafers.

WOMAN'S AUXILIARY

MINUTES OF THE EXECUTIVE COMMITTEE

Spring Meeting, April 4, 1941

The Executive Board of the Auxiliary to the Medical Society of the State of North Carolina met at Lenoir at the home of Mrs. Clyde R. Hedrick, president, on Friday, April 4, 1941, at 10 a. m. There were short meetings of various committees.

A delicious luncheon was served at the Carlheim Hotel, with Mrs. Hedrick hostess to the members of the Board, the Caldwell County Auxiliary, and Dr. Caroline McNairy, member of the Advisory Board.

Following the luncheon the meeting was called to order by the president, Mrs. Hedrick. The roll was called and the minutes of the Fall Executive Board meeting were read by the secretary pro tem. The corresponding secretary was instructed to write notes to Mrs. P. P. McCain, Mrs. J. Roy Hege and Mrs. C. F. Strosnider, expressing regret at their absence due to illness. The following reports of officers were given: Mrs. Hedrick, president, stated that she would not give a full report now, since that would be made at the State meeting of the Auxiliary. She said that she had had a pleasant year working with the Auxiliary and appreciated the help and cooperation of her corresponding secretary. Mrs. Sidney Smith, president-elect, gave a splendid report showing that she has given much time and thought in the preparation for her work as president. In the absence of Mrs. J. H. McNeill, second vice president, her report was read by Mrs. Kent. She reported that a nurse is occupying the McCain Bed and a doctor the Stevens Bed. Both were remembered with gifts at Christmas. A letter from Mrs. Stevens was read expressing her sincere thanks to the Auxiliary for naming the Stevens Bed in honor of her late husband, Dr. M. S. Stevens.

Mrs. J. S. Hooker, third vice president, reported that only one request for a student loan had been made this past year. This loan was granted. Mrs. Hooker was appointed to work out some plan to collect on loans now due.

Mrs. E. C. Judd, treasurer, reported a balance of $232.51 in the general expense account; $370.17 in the bed up-keep fund; $1864.81 in the McCain Endowment Fund; and $561.52 in the Student Loan Fund. Mrs. Smith asked that the Executive Board give Mrs. Judd a rising vote of thanks for her splendid work.

The reports of chairmen were as follows: Mrs. Kendall, *Bulletin* Chairman, reported she had secured fourteen subscriptions. She made a plea that more publicity be given the *Bulletin* in order to interest more Auxiliary members in subscribing to this official publication of the National Auxiliary. Mrs. A. A. Kent, Jr., Chairman of Press and Publicity, reported that articles of interest had been published in the Auxiliary space of the NORTH CAROLINA MEDICAL JOURNAL. She asked that each one help secure material for the press and publicity department. Mrs. J. A. Elliott, Legislation Chairman, gave a full and interesting report of her year's work.

Reports were given by the following councillors: Mrs. P. G. Fox, District 6; Mrs. Harry Winkler, District 7; Mrs. J. W. Vernon, District 9.

Of particular interest was the outstanding accomplishment of the Wake County Auxiliary in raising $236.77 by sponsoring a bridge tournament. Mrs. Hedrick urged that each councillor contact every eligible doctor's wife in her district and invite her to join the Auxiliary.

As new business the acting secretary read the tentative program for the Auxiliary Meeting at the State Convention in Pinehurst, May 19-21. The guest speaker is to be Mrs. V. E. Holcombe of Charleston, West Virginia, president of the National Auxiliary. Mrs. Smith made a motion that Mrs. Judd select some one to register and collect dues from any eligible doctors' wives at the State meeting in Pinehurst. Mrs. P. G. Fox seconded the motion. The motion was carried that Mrs. McGeachy act as Chairman of Hospitality and that each Board member be a member of this committee, with badges so designating them. Mrs. Smith told of the plan for war relief work as planned by State Medical Society for surgical supplies. The Auxiliary is to work under the direction of State Medical Society to get surgical supplies that are so urgently needed in the warring countries.

Mrs. Winkler moved that the Executive Board go on record as desiring to cooperate with the State Medical Society in the "Medical and Surgical Supply Committees of

America for Aid to Britain and Other Democracies" as needed. Mrs. Vernon seconded the motion. The motion was carried.

Mrs. Smith recommended that a State Chairman be appointed for this committee, who would be a member of Executive Board.

Mrs. Hedrick announced the meeting of American Medical Association and Auxiliary in Cleveland, Ohio, June 2-6, 1941, stating that she expected to be present, and hoped that others would attend. Mrs. Hedrick made the following requests: First, that each member of the Board bring her notebook up to date and have it ready to turn over to her successor at the Pinehurst meeting; second, that the names of any deceased doctors' wives be sent to Mrs. J. R. Terry, Scrapbook Chairman.

Respectfully submitted,

BESSIE BYERLY,
Recording Secretary, pro tem.

ANNOUNCEMENT

Mrs. V. E. Holcombe of Charleston, West Virginia, president of the Woman's Auxiliary to the American Medical Association, will be guest speaker at the State Auxiliary meeting in Pinehurst, May 19-21. New and old members of the Woman's Auxiliary to the Medical Society of the State of North Carolina come to Pinehurst for our State convention and learn your Auxiliary and enjoy it by taking part in its activities.

MRS. ALFRED A. KENT, JR.,
Press and Publicity Chairman.

ENTERTAINMENT FOR WOMEN

AUXILIARY GENERAL CHAIRMAN OF CONVENTION

Mrs. P. P. McCain.....Sanatorium

RULES AND PROCEDURE

1. Register before first session and receive badge. $1.00 registration fee for all who do not present 1940-41 membership card.
2. Wear badge to all functions.
3. Please register promptly for various events.
4. Visiting women are requested to drive their own cars if possible.
5. Wives of Fort Bragg Medical Officers and Medical Staff members of the Fayetteville Veterans Facility are to be special guests and should obtain their "guest" badges upon arrival at the Carolina Hotel.

MONDAY, MAY 19

*3:00 p. m.—Drive to State Sanatorium. Tea—Mrs. P. P. McCain's residence, courtesy of Sanatorium doctors' wives.
8:30 p. m.—Bermuda Movie, courtesy Dr. M. A. Pittman, Pine Room. "Keno", Pine Room.
10:00 p. m.—Dance, North Carolina Public Health Association, Ball Room.

TUESDAY, MAY 20

9:00 a. m.—Executive Board Meeting, Pine Room.
10:30 a. m.—Annual Meeting, Pine Room.
*2:00 p. m.—Movies, Southern Pines.
or
*4:00 p. m.—Bridge, Pine Room.
8:30 p. m.—President's Reception.
10:00 p. m.—Annual Medical Society Ball.

WEDNESDAY, MAY 21

9:30 a. m.—Drive to Orchid Gardens or Neighboring Antique Shops.

* Must register for these events.

NOTICE

This is the *Last Call* for reservations for the Nineteenth Annual Convention of the Woman's Auxiliary to the American Medical Association which will be held at Hotel Carter in Cleveland, June 2-6. All Cleveland extends a hearty welcome to you!

In Memoriam

C. O. DELANEY, M. D.

1895-1940

After an illness of a few hours, Dr. Charles O. DeLaney, esteemed and honored member of the Forsyth County Medical Society, died on the night of December 15, 1940, at his home. In his going the medical fraternity of Winston-Salem and Forsyth County, and the civic community as well, have suffered an inestimable loss. Dr. DeLaney went his way among us in a way that reflected honor on himself and his profession. He was well trained in his branch of the profession, and never neglected an opportunity to improve his methods and to enlarge the scope of his knowledge. More than these things were the qualities within him which endeared him to all of us as a friend and a comrade. Of him it could be said that he was a man first and a physician afterwards. His age was but 45 at his death, but he had written his name large in his profession and his community.

Dr. DeLaney attended the University of North Carolina and afterwards entered the study of medicine at Jefferson Medical College, graduating from

that institution in 1919. He served first as resident and afterwards as acting medical director of the Sacramento County Hospital, Sacramento, California, from 1919 until 1921. From 1922 until 1924 he was in practice in Gastonia, N. C. He had been in practice in Winston-Salem from 1924 until his death. He was a member of the Forsyth County and the North Carolina State medical societies, and of the American Medical Association. He held membership in the American College of Surgeons, the Southern Medical Association, the North Carolina and American urological societies, and in the American Neisserian Medical Society. He was past president of the North Carolina Urological Society. He was an active member of the staffs of the North Carolina Baptist, the City Memorial, and the Kate Bitting Reynolds hospitals.

The membership of the Forsyth County Medical Society is especially bereft in the passing of Dr. DeLaney. To us he was professional colleague, friend, and valued consultant. Though he has left our midst his mark has been made, and the memory of his good works lives on. To his widow and other members of his family we extend heartfelt condolences, and a sincere expression of sadness at the passing of this colleague from among us.

Submitted by
Elbert A. MacMillan, M.D.

CHARLES E. MOORE, M. D.

Dr. Charles E. Moore, of Wilson, died of pneumonia on February 12, 1941. He was believed to have been eastern North Carolina's first surgeon. A native of Whitakers, Dr. Moore came to Wilson County to practice after graduation at Bellevue Hospital, New York City. He helped to found the old Wilson Sanatorium, first hospital in the eastern part of the state where surgery was practiced. In 1913 he helped found what is now the Woodard-Herring Hospital.

DENIS R. WOLFF, M. D.

WHEREAS our Heavenly Father in His Infinite Wisdom has seen fit to remove from this life our beloved brother, Denis R. Wolff, of Greensboro, a most worthy member of the Guilford County Medical Society; one who was held in high esteem by his colleagues for his professional competency as a physician and surgeon; one who was generous, charitable and widely beloved, who gave without reservation his time and effort to help many who could only reward his services with gratitude; one who night and day ministered unto the sick without regard to color or creed, time or place, or to the elements; one who never considered his physical capacity or limitations when he could be of service; one whose working power and physical reserve was phenomenal; one who had wide interests in the field of medicine and special proficiency in general surgery; one who on account of his large practice and devotion to duty neglected the pleasures of needed vacations and rest; one who has earned at great personal sacrifice a magnificent reward in heaven.

AND WHEREAS we feel very keenly the loss sustained in the untimely death of our departed friend.

NOW THEREFORE, be it resolved by the Guilford County Medical Society, that we extend our sympathy to his wife and family, and that copies of these resolutions be spread upon our minutes and that a copy be furnished the family of our departed brother.

Submitted by
Claude T. Whittington.

GEORGE WILLIAM KUTSCHER, JR., M.D.

It is given to some men to live a long useful life, before retiring to enjoy a ripe old age. To others, not so fortunate, the end of a useful life is a dragged out, distressing anti-climax. To still others, death comes in the midst of a life of active service, at the very high tide of the battle.

It was the privilege of George William Kutscher, Jr., to be numbered among those who go down fighting, in the thick of the struggle. He had won the respect of every one of his colleagues, and the affection of many. He had attained an enviable place in the social and religious life of the community, in the struggle for civic improvement and beautification, in the warfare against disease and unhappiness. When the summons came for him, he was still in the front line of aggressive warfare for what men by common consent call the best things. He never withdrew into a quiet sector to get ready for a new skirmish. He went down fighting.

He had not come up the easy way. Laxness, slackness, tardiness, undependability, were not to be found in his equipment. He did not censure others for having them; as for himself, he would tolerate none of them. Others might accept civic honors and neglect the duties that go with them; or try to cultivate a special bloom by happy-go-lucky optimism instead of by fertilizing and spraying and hoeing—he had no comment to make. As for him, the long hours in the committee room, at night, the back-breaking toil in the garden, the grueling search for the cause in the laboratory or at the bedside of his little patient—these things that did not show, made possible the results for which his colleagues, his city, and the state he adopted, now know him, and for which they honor him as they grieve over his loss.

His last battle was the toughest he ever knew. Only those who fought with him through those long days and nights of pain and discouragement and utter weariness—his doctors, his nurses, his friends, most of all his wife—can even guess at what that last fight cost him. But he did not falter. Grit, a bull-dog determination to take whatever came, at whatever cost in blood and toil and sweat, these were no new reinforcements to be called upon at the last; they were old trenchmates ready to move in and stand shoulder to shoulder with him when he needed them. They never failed him.

The newspapers and the medical journals have recorded the places of honor he attained, the services he rendered to his chosen profession, medicine, and the branch of it he so greatly advanced, pediatrics. It is for us, fellow members of his in the Buncombe County Medical Society to which he gave the best he had, especially in the generous service as secretary during the past six strenuous years, to place on record our love and appreciation of the friend who fought our battles with us and for us. This we do gladly tonight. As for the little children for whose lives and health and happiness he battled just as unweariedly as he carried on every other fight in which he ever found himself, there is no need for them to make such a record. It was already made during the years he was with them; and it is to be found in the grateful hearts of their mothers and fathers.

—Frank Howard Richardson, M.D.,
From the **Bulletin of the Buncombe County Medical Society.**

BOOK REVIEWS

The Avitaminoses. By Walter H. Eddy, *Ph.D., Professor of Physiological Chemistry, Teachers College, Columbia University; Director, Bureau of Foods and Sanitation,* **Good Housekeeping Magazine**; and Gilbert Dalldorf, M.D., Pathologist to the Grasslands and Northern Westchester Hospitals, Westchester County, New York. Second Edition. Pp. 519. Price $4.50. Baltimore: The Williams and Wilkins Company, 1941.

In presenting the second edition of this book, the authors have rewritten it and added fifty per cent more material in order to bring in the many advances of the last three years. As Dr. James Ewing says in the Foreword, it is "the first comprehensive treatise in English on the pathological responses to vitamin deficiencies." It is full of interest for the practitioner, since all the known vitamin deficiencies are discussed from the clinical standpoint, as well as from the standpoint of the pathological changes brought about. After preliminary chapters on vitamins and disease, the chemical nature of the vitamins, vitamins and cellular oxidation, and vitamin requirements, the known individual vitamins are discussed. The results of their deficiencies are given. A final chapter in this first part is on vitamins and infectious diseases. Part II consists of Appendix A, laboratory tests useful in the study of deficiency disease, and Appendix B, the vitamin content of foods.

Full bibliographies are added to each chapter, though the text itself is so comprehensive that these will hardly be needed. The book makes available to all who are interested the knowledge of vitamins up to date.

Physical Medicine. By Frank H. Krusen, M.D., F.A.C.P., Associate Professor of Physical Medicine, the Mayo Foundation, University of Minnesota; Head of the Section on Physical Therapy, The Mayo Clinic; Member of the Council on Physical Therapy of the American Medical Association. 846 pages with 351 illustrations. Philadelphia and London: W. B. Saunders Company, 1941. Price $10.00.

The author is probably the foremost exponent of physical therapy, and his book is complete and authoritative. His five divisions of thermotherapy, light therapy, electrotherapy, hydrotherapy, and mechanotherapy are fully discussed in their relation to the various medical specialties. He evaluates the various methods fully and gives his own choice of treatment as well as that of others.

In outlining the organization of a physical therapy department he emphasizes the importance of obtaining the proper personnel and describes the educational requirements of physical therapy technicians.

The chapter on the history of physical therapy makes interesting and pleasant reading. The illustrations are excellent, the bibliography complete. The author should be commended for the excellent index. The book is highly recommended, not as a source for the proper method of treating disease, but as a text and a reference for those who are teaching physical therapy and as a guide to the technician in this field of medicine.

Techniques of Conception Control. By Robert Latou Dickinson, M.D., Former President, American Gynecological Society; and *Woodbridge Edwards Morris, M.D.,* General Medical Director, Birth Control Federation of America. Paper covers. Pp. 56. Price $.50. Baltimore: The Williams and Wilkins Company, 1941.

This little pamphlet tells clearly and concisely the why and the how of birth control. Every method is discussed, with its advantages and disadvantages. Fifty illustrations add to the lucidity of the text. To the doctor who wants to know what to tell his patients who seek and need contraceptive information, it can be recommended as authoritative.

Summer Diarrhea in Babies

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